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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 25 1941

ACUTE BRONCHIOLITIS IN CHILDREN

BY

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AND

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(WITH SPECIAL PLATE)

> "Capillary bronchitis may well be termed the essential lesion of influenza."—HORDER.

Capillary bronchitis, or, as it is better called, acute bronchiolitis, is not generally admitted to be a clinical or pathological entity. The pathologists, the paediatricians, and the writers on diseases of the chest for the most part deny it a separate existence. The general view is expressed by Norris and Landis (1938): "The latter term [i.e., capillary bronchitis] should never be used. While a lesion limited to the finer bronchioles is possible theoretically, practically it never exists alone, as an inflammatory process invading the swollen bronchi inevitably extends to the anatomically related and contiguous vesicles as well. The term 'bronchopneumonia' is much the most preferable designation, and by common consent is the one now in general use." It is difficult to share this view when one has, in an influenza epidemic, seen dyspnoeic and cyanosed children die in asphyxia. Holt and McIntosh (1933), for example, express a contrary opinion when, in an account of acute bronchiolitis in children, they write: "The symptoms, however, are due chiefly to a bronchitis which extends to the smallest tubes. Fibrinous exudate, and in some cases oedema, cause obstruction with great respiratory distress." Horder (1933), too, in the admirable article on influenza quoted above, writes: "But the dominant feature, rarely absent in any really severe case, is a condition of capillary bronchitis, with intense pulmonary congestion. This may be unilateral or bilateral, is more often basal than apical, but it is not seldom universal. This condition may well be termed the essential lesion of the disease, for even when actual consolidation of the lung is present this is quite often an incident by comparison, and if the patient dies he dies with the consolidation rather than of it."

In the catarrhal epidemic of January–March, 1940, the majority of patients escaped with an acute pharyngitis, but in many the larynx, the trachea, the bronchi, the bronchioles, or the alveoli were progressively involved. When the inflammation extended to the bronchioles dyspnoea and cyanosis became urgent symptoms, and although this phase was most obvious in babies and young children it was by no means absent in adult infections. Discussion here will, however, be limited to this condition of acute bronchiolitis in children, for in them it ranks as a first-class medical emergency.

The cases on which this paper is based were seen mainly in hospital practice. Fifty children were admitted to the Derbyshire Hospital for Sick Children with an acute respiratory infection during the first ten weeks of 1940. Twenty-seven of these were under the age of 1 year. Seven children died, all of them under the age of 2. Six other children were seen in family and consulting practice, and although these added little to the clinical picture they included two deaths in healthy middle-class children, aged respectively 4 and 2, and corrected the common impression that fatalities do not occur except in infants or in debilitated children. It is not suggested that all these children were suffering from acute bronchiolitis: in some of them the final diagnosis was acute bronchitis and in others bronchopneumonia, but in many it was possible to diagnose a phase in the infection when the small bronchioles were filled with exudate. Occasionally the children died in this phase of obstructive dyspnoea; some recovered without further extension of the inflammatory process, but more often the condition went on to bronchopneumonia, in three cases with a fatal termination some weeks later. No detailed case histories will be given, but a composite clinical picture of acute bronchiolitis will be attempted, and the treatment of the condition will be discussed in detail. In order that the clinical diagnosis may be substantiated the pathological appearance of the lungs in an infant who died in asphyxia will be described and illustrated.

Aetiology

Acute bronchiolitis is rarely seen except when influenza of a respiratory type is epidemic. It is not limited to any age group, but it is in children under the age of 2 years that its attack may be so often overwhelming, This may depend on a defective local resistance in the absence of any acquired immunity; often another factor appears to be the heightened virulence of an invading organism in its passage through several hosts, for the baby is usually the last member of the household to contract a catarrhal infection.

It is most often seen in children of the poorer classes, and here the lower immunity presumably depends on environmental factors: defective and injudicious feeding, confined living-space, and closer contact with infections. Middle-class children by no means escape, however, and the most rapid death in this series (thirty-six hours from the onset) was that of the son of a professional household whose nature and nurture were ideal.

No influenza-A virus was recovered by the Medical Research Council workers (C. H. Andrewes, in a personal

communication) during the 1940 epidemic, with the exception of one specimen brought back from the army in France. It will be remembered that Stuart-Harris, Andrewes, and Smith (1938) attempted a clinical differentiation of influenza, in which their virus was recoverable, from "febrile epidemic catarrhs," in which it was not. One of the clinical distinctions suggested was the much greater incidence of acute bronchiolitis in virus influenza. Further investigation has demonstrated that no such clinical differentiation is possible (Stuart-Harris, Smith, and Andrewes, 1940), since most of the clinical criteria, including acute bronchiolitis, occurred commonly in the non-virus epidemics of 1939 and 1940. Large numbers of throat swabs were examined by one of us (G. R. O.) in the 1940 epidemic, but the findings were too inconstant to assume that the epidemic was due to the organisms demonstrated by the usual methods of smear and culture. Pneumococci (not belonging to Group 1, 2, or 3), fusiform bacilli and spirochaetes of Vincent, Gram-negative diplococci of the *catarrhalis* group (later meningococci also), and streptococci (*viridans* and haemolytic) were the organisms most commonly found. The variable findings soon led to the belief that these swabs were only demonstrating secondary invaders. Unfortunately we did not succeed in getting a case within forty-eight hours of the onset to send washings for examination for virus. All cases coming to hospital had, after the onset, been sick outside for over two days.

Morbid Anatomy

The main features of the histopathology of influenzal virus infection in experimental animals are described in somewhat similar terms by the different investigators. Straub (1937) states that the primary lesion in mice infected with human influenza virus is a fibrinoid necrosis of the epithelium of the terminal and respiratory bronchioles leading to a state of complete epithelial desquamation. He gives a photomicrograph of an acellular fibrinoid plug in a bronchiole, and states that the exudation of polymorphonuclear leucocytes is not a feature unless secondary infection takes place. Other investigators do not refer to a "fibrinoid" exudate. Shope (1934) describes the bronchial exudate in ferrets infected with the swine influenzal virus as "a thick, tenacious, glassy, white mucous exudate which is usually profuse." He finds large numbers of inflammatory cells in the walls of alveoli, but the air sacs themselves contain coagulated plasma and very few cells. Shope and Francis (1936) find a similar picture in the lungs of swine infected with human influenza virus. The cut bronchi show a less abundant glassy, tenacious mucous exudate. There was epithelial damage and a pronounced peribronchial round-celled infiltration. The alveolar walls were much thickened, but there were few cells in the alveoli. Nelson and Oliphant (1939) studied the development of the lesions in mice infected with human virus. Like other observers they find the earliest lesion (eighteen to twenty-four hours) is damage to the bronchial epithelium, but there is an exudate in which polymorphonuclear leucocytes predominate. By forty-eight hours the polymorphs become necrotic and epithelial damage is more severe. The interstitial alveolar exudate appeared in three days, and this was the time the animals began to die.

The essential features of experimental influenza may therefore be summarized thus: (1) more or less complete destruction of bronchiolar epithelium; (2) obstruction of the lumen of bronchi and bronchioles by a plug of "thick, tenacious, glassy, white mucous exudate"; (3) peribronchiolar cellular infiltration extending to the interstitial tissue of some of the neighbouring alveoli; (4) alveolar sacs mostly free from exudate, but some close to affected bronchioles contain a serous exudate with few cells. These essential features were all present in the necropsies now to be described, and this is part of the justification for regarding them as truly influenzal.

During the 1940 epidemic in Derbyshire opportunities for post-mortem examination occurred in a number of cases. Two of these were especially interesting because they were almost pure acute bronchiolitis.

A boy aged 1 year and 7 months died in the Derbyshire Hospital for Sick Children; the necropsy was made on February 1, 1940. The pharynx and trachea showed simple reddening with no membrane and little exudate. The lungs were markedly emphysematous; they did not collapse when the chest was opened, but met in front of the heart. There was no pleural exudate. The cut surface of the lungs did not show any obvious pneumonic consolidation—the general emphysema gave the reverse appearance. Small pearly nodules very closely resembling miliary tubercles stood up all over the cut surface. They were not as numerous as in most cases of miliary tuberculosis; there were no tubercles elsewhere in the body, and acid-fast bacilli were absent. The nature of these "tubercles" is shown in the photomicrographs. Fig. 1 (see Plate) shows the lumen of a bronchiole 0.7 mm. in diameter. It is plugged with tenacious mucus in which only a few cells are present. The epithelial lining is completely necrotic and the wall is infiltrated with polymorphs, lymphocytes, and macrophages. Most of the alveoli near this bronchiole are overdistended with air, but in one part inflammatory changes have taken place; these are interstitial engorgement and infiltration and a serous exudate into the alveolar sacs. This mucous plugging and epithelial destruction was the typical lesion in the larger bronchioles; some contained rather more pus. Fig. 2 shows the changes in the smaller respiratory bronchioles. This bronchiole is seen to be plugged with a cellular exudate obviously different from the plug of mucus just described. The cells in the exudate are necrotic polymorphs with pyknotic nuclei and macrophages which are well preserved. Changes in the surrounding alveoli are similar to those shown in Fig. 1. A number of sections were examined after staining by Gram's method, but no organisms could be found. The remaining organs in this child showed nothing of interest.

Fig. 3 is from a woman aged 36. Necropsy was performed on February 29. The lungs were both markedly emphysematous and showed no pneumonic consolidation. The lesions were virtually the same as in the baby. This photomicrograph shows a small bronchus with cartilage. There is some necrosis of the lining epithelium, cellular infiltration is relatively slight, mucous glands are secreting freely, and the lumen is blocked by a plug of tenacious white mucus with very few inflammatory cells. The diagnosis before death in this case was influenzal bronchitis (not pneumonia), and dyspnoea and cyanosis were prominent features.

A third case may be mentioned because the patient, a man aged 50, died on February 21, 1940, less than an hour after an injection of morphine. His lungs were markedly emphysematous and met over the heart; the right weighed 19 oz. and the left 20 oz. There was no obvious pneumonic consolidation, but the bronchi were blocked by muco-purulent plugs. His other organs were healthy, but the heart weighed 16 oz. and showed early coronary arteriosclerosis.

The main difference between the lesions in these human cases and those in the experimental animals is the extent of the emphysema. Jackson (1934a) describes four types of bronchial obstruction by foreign bodies and exudates. In the "by-pass valve" ingress and egress of air are checked but not prevented, so there is no collapse or emphysema of the lung. In the "check-valve" type air can enter, but the egress is stopped, and this results in emphysema. The third type is a "stop-valve" which causes obstructive atelectasis. The fourth type is really a variant of the third type—a ball-valve obstruction allowing egress only, which results in rapid and complete atelectasis as in the "stop-valve" effect of Type 3.

In view of the great clinical importance of these plugs of mucus it would be interesting to know how they arise. Cartilage disappears from bronchi when they reach a diameter of about 1 mm.; the tubes smaller than this are known as bronchioles. Some state (e.g., Maximow and Bloom, 1934) that the mucous glands disappear with the cartilage. Others (e.g., Lewis and Stöhr, 1913) state that glands may extend beyond the cartilage and that goblet cells may be found until the ciliated columnar epithelium gives way to cuboidal and then respiratory epithelium. Miller (1940) states that cartilage disappears when the diameter reaches 0.6–0.7 mm. and that goblet cells become less as the diameter falls and disappear in bronchioles of about 0.4 mm. However this may be, it is notable that plugs of mucus are found in bronchioles much smaller than those which are said to have mucous glands. Was this mucus secreted by the epithelium before it was destroyed, or was it secreted by glands in larger bronchi?

Signs and Symptoms

The onset may be acute, with fever, very rapid and laboured breathing, cyanosis, severe cough, and prostration; but more often the child has for a day or two a slight temperature, pharyngeal cough, and some gastro-intestinal upset before the infection extends. The larynx may next be affected; the child develops a laryngeal cough together with soreness over the larynx, hoarseness of the voice, and sometimes aphonia. Dyspnoea and stridor, due to laryngeal spasm, may be present at this stage. From this phase the child may pass quite suddenly to bronchiolitis. The ultimate bronchioles become plugged with exudate and the clinical picture is dominated by *obstructive dyspnoea.* Respiratory distress is then very marked; the respiration rate is rapid—from 60 to 100 a minute. There is recession of the soft parts of the chest during inspiration. Cough is always incessant and disturbing. Cyanosis is often obvious quite early, but becomes extreme towards the end. Collapse is usually terminal, but sometimes the toxaemia appears to be profound from the start and the child is quickly apathetic and stuporous. The characteristic clinical picture is distressing and unforgettable: the head turning restlessly from side to side on the pillow, the dusky cyanosis of the lips and cheeks, the expression concentrated but unprotesting, the wildly distressed breathing, the relentless cough, and the final apathy. The physical signs are dominated by the presence of fine rales scattered over both lungs and, particularly towards the hila, mingled occasionally with coarser rales. The air entry is everywhere diminished, but there is no evidence of consolidation. The percussion note is more resonant than normal owing to the emphysema which is usually present. Sometimes sibili accompanying prolonged expiration may be heard, suggesting the presence of bronchiolar spasm. Occasionally large areas of collapse at the base may be suspected, presumably due to the blocking of large bronchioles with exudate. The degree of local emphysema or collapse presumably depends on whether the obstruction is of the "check-valve" or the "stop-valve" type.

The course varies considerably. A child acutely ill may be well and without symptoms in three days. Death from obstructive dyspnoea occurs, if at all, on the second, third, or fourth day. More often the fine rales give way to the coarse rales of an ordinary bronchitis when the acute phase is over, and this may persist for a few days. Sometimes consolidation develops and a protracted bronchopneumonia sets in; occasionally a whole lobe is consolidated. The recovery of the urgent and severe cases with obstructive dyspnoea appears to depend on the institution of the measures detailed below.

Treatment

A student examining the measures advised by a score of authorities for the treatment of acute bronchitis and bronchopneumonia in children will find opinions so various that he may doubt if a multitude of counsellors achieves wisdom. He will discover that on such questions as fresh air, hydrotherapy, steam tents, oxygen, alcohol, digitalis, emetics, stimulants, mustard baths, plasters, poultices, venesection, blood transfusion, sedatives, and cough-mixtures there are as many opinions as authors. Abt (1939) represents mature opinion when he writes of the treatment of pneumonia in children: "We have long believed that one form of symptomatic treatment was as good as another provided neither form did harm."

One of the general methods to be adopted in the treatment of acute bronchiolitis is that these children should be nursed in warm moist air, with an adequate oxygen supply. In gamgee jackets, in antiphlogistine, and in linseed and mustard poultices it is difficult to put faith, but it is more difficult still to withstand the expectations of nurses and parents. Alcohol is the best sedative for children (and phenobarbitone the second-best). Brandy, whisky, or port may be used for children; doses may be individually determined, but 30 minims to 1 drachm two or three times in the twenty-four hours is an adequate dose for a child of 1 year. *No other sedative should be used for children with acute bronchiolitis, for if by sedatives their respiratory excursions are depressed and their coughs are quieted they die: any derivative of opium may bring a sleep which is final.*

"All bronchial therapy is futile," wrote the great Osler, dying of an influenzal infection; and this death-bed pronouncement has a papal quality. Moreover, there is to-day no need to resort for help to the Virginian prune, the wild lettuce, or ipecacuanha. Least of all to ipecacuanha: children are either not ill enough to justify the use of it in emetic doses or are too ill for this to be a wise therapy. In the treatment of acute bronchiolitis there are four factors demanding separate consideration—the infection, the obstructive dyspnoea, the cyanosis, and the collapse.

The Infection

It is important to use sulphapyridine (M & B 693) in full dosage, and to use it quickly. Infants 1 year old who are acutely ill when first seen should be given 1 gramme (2 tablets) immediately and 1/2 gramme four-hourly in the succeeding twenty-four hours. It is necessary to continue with the sulphapyridine tablets for at least a week in gradually decreasing doses, otherwise the infection will in many cases relapse and a protracted bronchopneumonia may develop. If it does so it becomes obvious in the second or third week that the sulphapyridine is having no influence on the course of the infection. It may be necessary to give the sulphapyridine by intramuscular injection; 3 c.cm. of the injection being mixed with 3 c.cm. of normal saline, and particular care being taken to inject direct into muscle. This is not easy in infants, who have little muscle and much subcutaneous fat. Large and slowly healing areas of necrosis are a common sequel of careless administration. It is rarely necessary to employ intramuscular injection: children are not usually disturbed by the ingestion of sulphapyridine. Alkalis or nicotinic acid are effective in relieving nausea and vomiting. This therapy rests on the assumption that the bronchial invaders are sensitive to sulphapyridine. Certainly there was no doubt of this in the last epidemic. The infection was quickly under control, and if the child could be maintained through its period of obstructive dyspnoea for a short time the sulphapyridine usually did the rest.

INDICATIONS FOR SULPHAPYRIDINE THERAPY

What are the indications for the use of sulphapyridine in the acute catarrhal infections of childhood? This is a question to which many different answers may be given: it will be generally agreed that there is seldom evidence in children, even with considerable dosage, of extreme depression of granulopoiesis. These are some empirical suggestions for its employment:

1. It should only be used if the infection appears to be severe enough to justify a week's therapy.

2. It should be used more often in epidemic than in sporadic cases, in weakly and debilitated children than in the healthy, in catarrhal infections complicating measles and whooping-cough than in primary infections.

3. It should always be used in infections with an acute onset—i.e., convulsions or rigors or high temperatures.

4. It may be more safely omitted in lobar pneumonia than in bronchopneumonia.

5. There is only need for its urgent administration in acute infections. In less severe infections a period of observation for the mobilization of the host's resources seems rational. It is easier to justify delay than the use of desultory or half-hearted measures.

The Obstructive Dyspnoea

This is the most urgent symptom, and *steam* usually brings great relief. The majority of modern writers will have none of it; others allow a kettle in the middle of the room at some distance from the bed; and a few permit a half-tent over the head of the bed. Steam-tents are the antithesis of the fresh-air treatment of pulmonary infections; but what proved virtue has fresh air besides its oxygen content? Those writers who believe that "fresh air has a stimulating effect on metabolism" are very careful to warn against air that is too fresh—i.e., a draught—and they temper their enthusiasm for alfresco therapy with warnings against the vagaries of the British climate. Moreover, where is this fresh air in an oxygen tent? There is no need to be afraid of surrounding the child with an atmosphere of steam: it is soon obvious that the patient's dyspnoea is relieved. The steam-kettle should be used with its nozzle inside the tent for periods of half an hour, and the child should be replaced in steam whenever breathing becomes difficult.

If there appears to be any bronchial spasm exaggerating the obstruction 2 minims of adrenaline (1 in 1,000) should be used and repeated. Otherwise, 1/150 grain of atropine, repeated four-hourly, seems helpful in decreasing the bronchiolar exudate.

We have no experience of bronchoscopic aspiration in this condition, nor any knowledge that it has been used in this country. Chevalier Jackson (1934b) writes thus of the kindred condition which he calls "self-drownage": "The accumulation may literally drown the patient in his own secretions. This is illustrated frequently in influenza and arachidic bronchitis. Infants cannot expectorate, and their cough reflex is exceedingly ineffective in raising secretion to the larynx. The cough reflex may be entirely absent in children. Age may be cited as one of the most frequent etiologic factors in the condition of self-drownage. Bronchoscopic aspiration is quite efficient, and can save any patient not affected with conditions that are fatal by other pathologic processes." Bronchoscopic aspiration under these conditions requires the services of an expert bronchoscopist who is accustomed to bronchoscopy in children without general anaesthesia.

The Cyanosis

Cyanosis is the indication for oxygen, which should be delivered through a Woulfe's bottle of warm water and a nasal catheter at the rate of three litres a minute for an infant (a rate of flow which is a continuous stream, making the water splash in the Woulfe's bottle). The nasal catheter is to be preferred to the small oxygen tent in acute bronchiolitis, for delivery by nasal catheter has the advantage that steam can be employed at the same time. The oxygen should be used continuously as long as the cyanosis persists and not, as is often recommended, for a few minutes every hour.

The Collapse

No measures devoted to preventing or relieving circulatory failure have the same importance as those already described. There is no drug which re-energizes the failing heart nor any which has a selective action in an overcharged venous system. Coramine is the drug which seems best to stimulate the failing circulatory system, and should be used for a child of 1 year by intramuscular injection in 0.5 c.cm. doses every four hours. Strychnine, adrenaline, camphor, digitalis, strophanthin, and eucortone all have their advocates. It is difficult to assess these last-minute remedies that are intended to arrest the patient's progress from the "saddle to the ground." Most often they appear to delay this progress rather than to check it finally; perhaps they are best regarded, in a friend's indulgent words, as "house-physicians' treatment." Some of them may be definitely harmful and are better avoided. Venesection is frequently recommended for right-sided heart failure; one paediatrician commends the withdrawal of "a drachm or two of blood from a vein as a most useful measure and one that is probably not employed often enough." It would certainly need to be used very often in this measure to make any difference to an overcharged circulation. Nothing less than the removal of 50 c.cm. would seem likely to give any relief to a child with a blood volume of more than twelve times this quantity. In cyanosed children with distended jugular veins it has definitely appeared to be of value, especially if the blood is removed rapidly from the circulation.

Summary and Conclusions

It is contended that acute bronchiolitis is the essential pulmonary lesion in epidemic influenza, as it is in experimental influenza. This condition is particularly common in young children, in whom it produces urgent dyspnoea and, if not vigorously treated, death by asphyxia.

The clinical picture and the morbid anatomy of the condition are described. It is suggested that the respiratory obstruction is caused by mucus in the bronchioles. The lungs of an infant showing this condition are described and illustrated.

Sulphapyridine, steam, and oxygen are the essential therapeutic measures. Bronchoscopic aspiration in the hands of the expert may be life-saving.

The use of any sedative demands especial watchfulness: opium or its derivatives bring swift disaster.

We are indebted to Dr. E. P. L. Hughes for permission to review some of his case notes and also to Detective-Sergeant J. S. Fayers for the photomicrographs.

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EXPLORATION OF THE COMMON BILE DUCT FOR STONE

DRAINAGE WITH T-TUBE AND CHOLANGIOGRAPHY

BY

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(WITH SPECIAL PLATE)

In the early days of operations for cholelithiasis the majority of surgeons were content to remove the stones and drain the gall-bladder. The operation was comparatively easy and, as operations went in those days, comparatively safe, and it was regarded as the ideal surgical treatment. Not all surgeons, however, accepted this view, and there were not wanting restless intrepid spirits who did not hesitate to remove the gall-bladder if it was obviously diseased; but even they viewed with misgivings any condition which necessitated interference with the common bile duct. Their reluctance was due not so much to the added difficulties of the operation as the fear that if an actual fatality did not result they might be left with a persistent biliary fistula. Too often had they encountered fistulae following on drainage operations of the gall-bladder, and the thought no doubt was uppermost that a fistula, almost inaccessible if not irremediable, might result. Consequently the pioneers of operations upon the common bile duct were at great pains to secure a watertight closure of the duct, and as a further precautionary measure they closed the abdomen without drainage. Complete closure was found to be a mistake, for in spite of their efforts there was leakage of bile, with fatalities due to peritonitis. This danger was averted by insertion of a drainage tube down to the suture line, and it was found that the duct healed satisfactorily. Indeed, it was soon evident that, provided the duct had not been grossly damaged, it required little suturing. Some even went so far as to omit suturing altogether, with no untoward result; in fact, the danger of fistula was more imaginary than real, and if a temporary fistula were required for hepatic drainage, then it was necessary to stitch a tube in the duct itself, the duct again closing rapidly when the tube came away.

Granted the remarkable healing powers of the common bile duct; yet it has always been a most debated step among surgeons as to whether or not exploration of the duct should be carried out in *all* operations for cholelithiasis. It adds to the time and gravity of the operation, since it is performed at depth—sometimes at great depth and with great difficulty. Obviously if the duct contains a stone it must be removed, for cholecystectomy will not rid the patient of his trouble: as well might one lock the stable door when the horse has bolted. It is in cases, however, in which there is little or no indication for exploration of the duct or in which the surgeon is in doubt as to whether he is dealing with an impacted stone, an enlarged gland, or a thickened portion of pancreas, that controversy arises. There are those who affirm that the duct should be explored in all cases in which operation is undertaken for cholelithiasis or cholecystitis, and they produce statistics to prove their point. Statistics, as someone has remarked, may be made to prove anything, even the truth, but much evidence is accumulating to prove the contention that this step should be more often carried out. In many instances where patients have had their gall-bladders removed they have not been completely relieved of their sufferings, and indeed to their great disappointment sometimes have a return of symptoms in all intensity. This is due to stone in the common bile duct that has been overlooked or neglected. If not due to actual stone, the advocates of common bile duct exploration say it is due to biliary mud or inspissated mucus, which could have been remedied by drainage of the duct and dilatation of the sphincter of Oddi, a muscle which they maintain is always in spasm in such cases. A second operation is not welcomed by the patient or the surgeon, for it is more difficult and more dangerous.

Surgeons are well aware of the added difficulties and dangers of common bile duct exploration, but Lahey of Boston, who is a strong advocate of this step, thinks that with a surgeon of competence and experience in biliary surgery this step does not entail any more danger to the patient—in fact, quite the contrary. In a large series of cases in which he or his colleagues of the Lahey Clinic have explored the common bile duct, only one patient in whom no stones were found died following exploration. On the other hand, the mortality from secondary operations for stone in the duct was out of proportion. He further warns against too much reliance being placed upon clinical features which heretofore were regarded as a *sine qua non* of stone in the common bile duct. The following summary embodies most of his findings.

Clinical Features of Stone in Common Bile Duct

Jaundice.—This symptom, which was considered a sheet-anchor in diagnosis, is absent in at least one-third of cases. Lahey in a review of three separate series of cases in which stones were present in the common bile duct found that jaundice was absent, and never had been present, in not less than 37% of cases—in his last series 39%. Snell of the Mayo Clinic lays emphasis on the fact that stones in the common bile duct rarely if ever completely occlude the duct for long, and so the stools or duodenal contents always contain bile at one time or another. On the other hand, an evanescent jaundice associated with colic and cholelithiasis does not necessarily mean a stone in the common bile duct, as it may be due to hepatitis or mild cholangitis.

Colic.—From 75 to 80% of patients suffer from upper abdominal colic at some stage of the disease. This means that at least 20% do not have acute pain, though they may suffer perhaps from indigestion, with intolerance to certain foods, such as eggs, fats, and so on. It is stated that the colic is most often referred to the right upper abdominal quadrant, but in my own experience of eight cases in which stone was found only in the common duct the pain was referred to the epigastrium and radiated through to the back between the shoulder-blades.

Chills and Fevers (Charcot's Intermittent Hepatic Fever) due to Cholangitis and Hepatitis.—In Lahey's series chills and fevers were present in only 4.2% of cases—a remarkably low figure which was attributed to the fact that a large proportion were operated upon early, and also to the practice of exploring the ducts in all biliary operations.

Duodenal Drainage.—Aspiration of the duodenal contents in Lahey's series yielded crystals of calcium or cholesterol in the drainage sediment in 30 out of 32 cases in which stones were found in the common bile duct at operation.

X-Ray.—Cholecystography is indirectly most helpful, but of course the dye does not outline the common duct. Sometimes if the stone in the duct contains enough calcium it may be made to show up and its position be located by the aid of barium in the duodenum.

Indications for Exploration of Common Bile Duct

At operation the following findings are suggestive of stone in the common bile duct: (1) Thickened and contracted gall-bladder. (2) Dilated cystic duct: normally the duct admits a probe with difficulty. (3) Dilated common duct (normally a quarter of an inch in diameter) which has lost its colour. Even in the presence of enormous

dilatation, as sometimes happens in carcinoma of the head of the pancreas, the duct will retain its bluish colour, but when dilatation is associated with stone and infection it alters to a pinkish grey or yellow.

Among my own cases there were eight in which stones were found only in the common bile duct. In five of these the gall-bladder had been removed at a previous operation. All these patients suffered from intermittent colic, the pain being referred to the epigastrium with radiation between the shoulder-blades. The pain was not referred to the right hypochondrium. In one case in which the common bile duct had been explored six months previously by a competent surgeon the severity of the colic combined with rigidity of the abdominal muscles led to a diagnosis of perforated ulcer; at operation the tissues surrounding the duct were oedematous and somewhat bile-stained, and a good-sized stone was found in the duct. Six of the patients complained of jaundice, but the other two remained free from this symptom throughout their illness. The gall-bladder in each of the cases in which cholecystectomy had not been performed was unmistakably pathological—shrunken, with thickened walls and altered colour—and the cystic duct in each was widely dilated as if its passage had just been forced by a stone. The gall-bladder in one case was no bigger than the terminal digit of a medium-sized finger, and would barely have accommodated the stone which it had apparently expelled into the common duct.

At operation the ducts must be palpated carefully for stone. The index finger of the left hand is passed into the foramen of Winslow and the duct carefully examined with finger and thumb, aided by the fingers of the right hand in front. Some surgeons prefer to carry out this examination standing on the left side of the patient, reversing the position of the hands for examination. If after careful palpation the operator is still in doubt bile should be withdrawn from the duct by a hypodermic syringe. Normal bile is clear, is golden yellow in colour, and stones will not be found associated with it. On the other hand, if bile is black or cloudy or contains flocculi, stones will rarely be absent from the duct.

It is unnecessary here to give the surgical technique of exploration of the common duct in detail. I do not use a bridge to elevate the costal margin, as anaesthetists find that it causes a fall in the blood pressure. It is better to explore the common duct through a separate incision than to attempt to explore through the severed end of the cystic duct. A suction apparatus should be in use, and, in addition to the usual packs, a small gauze pack should be inserted in the foramen of Winslow to prevent leakage into the lesser sac. Not only should the common bile duct be explored, but also both hepatic ducts for stones which escape upwards. This examination is done with a scoop or a Desjardins forceps. Elusive stones can sometimes be evacuated by flooding the ducts with saline and coaxing the stone towards the opening by means of the suction-tube inserted into the duct. Bougies should be passed down the duct to ascertain if the opening into the duodenum is patent, and dilatation of the sphincter of Oddi should be gently carried out with bougies—silk-web olivary bougies for preference, though some prefer to use Lister's sounds. Bougies greater than size 12 English or 22 French should not be used, for fatalities following excessive dilatation have been recorded. It may be added that the presence of the bougie in the lower end of the duct often materially aids palpation and helps to distinguish whether the particular swelling is inside or outside the duct.

It must be acknowledged, however, that even after the most careful exploration of the common bile duct by competent surgeons stones in the duct have been missed. There is, of course, the possibility that such stones have formed in the bile ducts themselves after the gall-bladder has been removed. The generally accepted view, however, is that stones are formed in the gall-bladder and pass on via the cystic duct to the common duct. Some hold opposite views and believe that stones originate—the nucleus of the stone, at any rate—in the intrahepatic ducts. The composition of gall-stones and the site of their formation, then, are not of purely academic interest.

Naunyn first advanced the theory that cholesterol stones were formed in the gall-bladder and that for their formation infection and stasis were necessary. In recent years his views have been ably supported by Sir James Walton, a surgeon of great experience. Aschoff and Bacmeister maintained that a pure cholesterol stone is formed independently of infection, but that infection is necessary for the formation of a mixed stone. Boysen held the view that in all gall-stones there was a nucleus of pigment calcium, even in the so-called pure cholesterol stone. He had found small pigment-calcium stones in wholly normal gall-bladders, but cholesterol stones in inflamed gall-bladders. Rovsing agreed with Boysen that the primary factor was the formation of bilirubin-calcium stone, not in the gall-bladder, however, but by precipitation of bilirubin calcium in liver cells.

Lahey has recently added great support to the theory that stones can be formed in the ducts. He is convinced, from an experience amounting to 2,177 patients operated upon for gall-stones, that most common and hepatic duct stones are not produced in the gall-bladder but originate primarily within the common and hepatic bile ducts. "Again and again," he states, "have we found and removed stones in the common bile duct when the cystic duct was so small that even the smallest stone of bird-shot calibre would have trouble in passing through it." Rufanov (quoted by Walters) collected 57 cases of formation of stones within the intrahepatic ducts that had been reported in the literature, and reported 5 of his own.

Flint records an interesting case of a man who had four operations for biliary colic with jaundice and at each operation a pigment stone (or stones) was found in the common duct, the gall-bladder having been removed at the first operation. At the fourth operation the spleen was twice the normal size. Splenectomy rid the patient of his trouble, and he was alive and well fifteen years afterwards.

Cholangiography and T-tube Drainage

In recent years a method of visualizing the bile duct—cholangiography—has been introduced, a method which may in time solve this vexed question. An opaque solution is introduced direct into the common bile duct and a radiograph taken. Any stones in the duct show up as filling defects. This method can be utilized at the time of operation (immediate cholangiography) or the solution can be introduced later through the tube which has been used for drainage of the common bile duct (delayed cholangiography). Immediate cholangiography, which has been strongly advocated by Best, necessitates special *x*-ray arrangements in connexion with the operation table, and the surgeon must wait while the negative is being developed. A needle and 20-c.cm. syringe are used for injecting the opaque solution after the bile has been aspirated from the common bile duct. This ritual will hardly appeal to surgeons who are confident of finding stones in the common bile ducts without the aid of new-fangled methods, but even the most competent operators can be safeguarded against error if they will adopt the principle of using a T-tube for drainage on the common duct and carrying out cholangiography afterwards. The ordinary straight drainage tube used by surgeons is retained in the duct by a suture of plain catgut, as chromic gut has on occasions been found to provide a nucleus for stone formation. Plain gut dissolves in the course of

six to ten days, when the tube comes away. This period is inadequate for drainage in cases in which there has been cholangitis and hepatitis. A T-tube can be retained until the liver function has been restored to normal, and, furthermore, after an interval of twelve days, when the tube is firmly surrounded by the healing tissues, cholangiography can be carried out. If a stone has been overlooked and is discovered on *x*-ray examination it does not necessarily mean a further operation. There are now means at our command, through the aid of the T-tube, which may help to rid the patient of the stone without operation. The T-tubes supplied by manufacturers are invariably out of proportion, the cross-piece of the T being longer than the common and hepatic ducts combined. The whole circumference of the cross-limb is unnecessary,

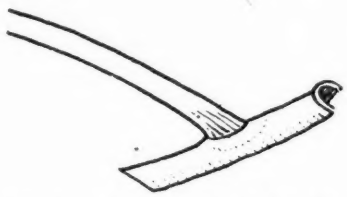

FIG. A.—T-tube prepared ready for use.

half the circumference being quite sufficient. This part of the tube should be whittled down until it measures no more than 1½ inches in length at the outside and half the circumference of the tube removed, for all that is required is a projecting shoulder on each side of the main stem to retain the tube in position (Fig. A). When prepared

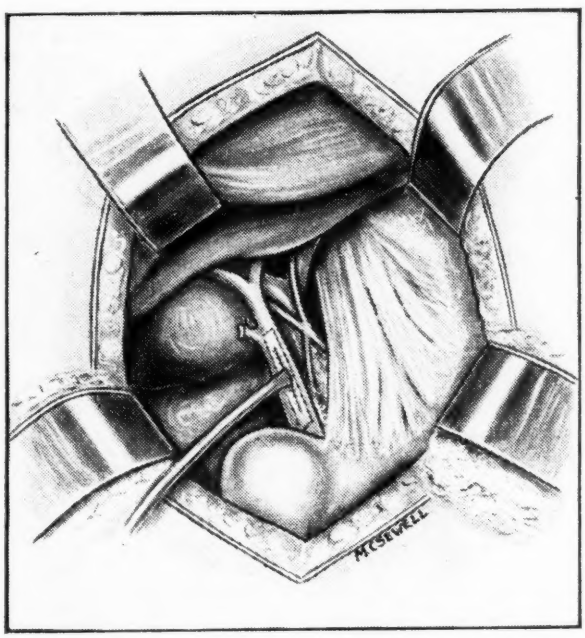

FIG. B.—Showing T-tube in position in the common bile duct.

in this way the tube is easy to introduce and is readily removed without causing the patient discomfort. The opening in the common bile duct is closed snugly around the tube and no stitch through the tube is necessary (Fig. B). An excellent type of tube is that used by Maingot, but, failing such, the operator can fashion one as described.

It is not expected, of course, that the T-tube should act as a drain for the operation area; this is provided for by a second tube which reaches down to the common duct and which for preference is brought out through a separate stab wound as recommended by Rendle Short.

The opaque solutions or contrast media most favoured have been thorotrast and lipiodol. I have already in this journal pointed out the objections to the use of these solutions. Thorotrast may be dangerous on account of its radio-active properties, and lipiodol, being thick and oily, does not mix well with bile and so filling defects may be mistaken for stones. I have tried uroselectan, but it is too apt to cause pain. Perabrodil I found quite satisfactory (see radiographs reproduced in Plate). To get the full opaque effect of the solution bile must first be aspirated from the common bile duct through the T-tube. The solution is first warmed to 100° F., then introduced from a sterile syringe. The usual amount introduced varies from 10 to 20 c.cm., about 15 c.cm. being the average, but in some cases in which the ducts were more than usually dilated—cases of cholangiectasis and hydrohepatosis—I have used as much as 35 c.cm. The injection is stopped as soon as the patient complains of discomfort in the epigastrium, and a radiograph is taken.

If stones are discovered by cholangiography the following methods of dealing with them are tried before a second resort to operation. Bile is first aspirated, then 1 to 2 c.cm. of ether is introduced and the tube is left open so that the ether, which readily vaporizes at body temperature, may not cause too much pressure within the duct. It is hoped by this means to dissolve the stone. Treatment can be repeated several times daily. Pribram, who has tried this method extensively, claims much success for it (stones dissolved in 38 cases). Walters and Wesson advise the addition of alcohol to dilute the ether, as well as the administration of amyl nitrite to produce dilatation of the sphincter of Oddi. In this way they were successful in fragmenting a stone which had been impacted in the ampulla of Vater and securing its passage into the duodenum.

By means of opaque media it is possible to study the effects of different drugs on the sphincter of Oddi. Amyl nitrite and nitroglycerin produce the greatest dilatation. Magnesium sulphate and fats, cream, olive oil, etc., also dilate the sphincter, but atropine is uncertain. Morphine, codeine, and dilaudid, contrary to what might be expected, produce spasm of the sphincter. Walters and others at the Mayo Clinic studied particularly the effect of morphine in 9 cases of biliary colic after the gall-bladder had been removed, and found that 1/6 grain of morphine sulphate produced pain, which was completely relieved by 1/100 grain of glyceryl trinitrate or by inhalation of amyl nitrite. Spasm of the sphincter of Oddi is probably the cause of clay-coloured stones observed in some cases after the administration of morphine. Best of Omaha, who had not had much success with the ether method, put these findings to good account in a number of cases. He combined the use of nitroglycerin, atropine, magnesium sulphate, and olive oil by mouth with the introduction of warm olive oil into the common bile duct through the T-tube.

I have tried the ether method without success, but in one case continued treatment on the lines laid down by Best, and was eventually successful in ridding the patient of her symptoms. The following is a brief history of the case.

A female patient, previously operated upon by another surgeon, when the gall-bladder, which contained stones, was removed; common bile duct not explored. Three months later recurring colic. Second operation (by me)—three stones removed; thought that another stone could be felt in the right hepatic duct further up, but all search proved unavailing. Bougies passed through ampulla into duodenum, and sphincter of Oddi dilated. T-tube inserted. Radiograph twelve days later: filling defect ampulla of Vater. Ether method tried unsuccessfully. Patient unfortunately had to be

evacuated from hospital and the T-tube was removed. While awaiting admission to another hospital she continued on treatment with nitroglycerin, atropine, magnesium sulphate, and olive oil. A few days before she was due to be readmitted to hospital she sustained severe colic followed by slight jaundice, and since then—now more than a year ago—has had no further trouble. I have no doubt that her attack signalized the passage of her stone into the duodenum.

How Long to Retain the T-tube

The question arises how long the T-tube should be retained in the common duct. One reads of cases, in America, in which it has been retained for periods varying from three months to a year. The time to remove the tube is when the concentration of bile salts in the bile has returned to normal. Following operation, whatever the condition of the liver, the concentration of bile salts falls for the first five days, a fall that is more pronounced if chloroform is the anaesthetic employed. The best anaesthetic would seem to be gas, oxygen, and cyclopropane. Febrile reaction following operation delays the return to normal. Unless the liver has been severely damaged by inflammation and back-pressure, the concentration of bile salts reaches normal about the fifteenth day, after which time it is safe to remove the tube. On the other hand, in cases in which there has been prolonged continuous or intermittent jaundice, particularly if associated with fevers and chills, it will be found that the concentration of salts will be delayed, and the tube may have to be retained for a much longer period as above mentioned.

I must offer a word of warning here against too prolonged and continuous drainage. In the case above recorded there was partial obstruction to the flow of bile into the duodenum. The tube was left to drain continuously, with the result that practically all the bile escaped externally; the patient at one stage showed rapid deterioration, and it was only by the use of intravenous saline and glucose and the administration of bile salts (veracolate) by mouth that we were successful in restoring her condition. Where there is not complete obstruction the tube should be closed at intervals to allow the bile salts to escape into the duodenum. If there is complete obstruction and the bile drains only externally, it is necessary to administer bile salts by the mouth and keep the patient as well as possible by other means until such time as a short-circuit or other operation can be done to divert the bile internally.

Jaundiced Cases

A certain proportion of surgeons have always been chary about operating upon jaundiced patients, because of the danger of haemorrhage—not vigorous haemorrhage from any particular arteries, but a continuous steady ooze from the tissues which is apt to continue after operation in such cases. This lack of clotting power is due to prothrombin deficiency and can be corrected by giving vitamin K in combination with bile salts by mouth before operation, the bile salts being necessary for the absorption of the vitamin from the intestine. Vitamin K for oral administration is supplied under the trade name of clotogen (Abbott). Another preparation—kapilon (Glaxo)—can be given by intramuscular injection. American writers, Whipple and Rhoads particularly, speak enthusiastically of this treatment, which can be enhanced by a blood transfusion before operation.

I believe that the danger of haemorrhage in jaundiced cases has been very much exaggerated—so much so, in fact, that in the minds of many newly qualified men there exists an almost superstitious awe of the consequences of surgical intervention. Personally I have never seen a case of jaundice in which a fatal ending could be attributed solely to haemorrhage following operation. No doubt such cases do occur, but some of them must be due to gross neglect of haemostasis. What does contribute more than anything else to a fatal ending in these cases is lack of adequate preliminary treatment and perhaps the efforts of the surgeon to attempt too much at operation. There is no necessity, for instance, to remove the gall-bladder when the patient is very ill and the urgent need is for relief of obstruction to the common duct. The gall-bladder can be left for another day. Where possible the patient should be put on a diet consisting of 75% carbohydrate, 20 to 25% protein, and not more than 5% fat for seven to fourteen days before operation. In cases of emergency, or if the patient is nauseated or vomiting, intravenous saline with glucose 5 or 10% should be given by the drip method, combined with blood transfusions. For further details of treatment I cannot do better than refer the reader to Flint's (1937) excellent paper.

Summary

Stone in the common bile duct is more often overlooked at operation than is generally realized.

Indications for exploration of the common duct for stone have been outlined—clinical features as well as conditions at operation.

Too much reliance must not be placed on the presence or absence of jaundice as a symptom. At a conservative estimate jaundice has been found to be absent in no less than one-third of the cases of stone in the common bile duct.

The use of a T-tube for drainage is strongly advocated, as it can be retained longer than the ordinary straight tube and so allows the liver a better chance of recovering to normal.

By means of the T-tube, (*a*) concentration of bile salts in the bile can be ascertained and an estimate be formed of liver function; (*b*) cholangiography can be carried out and any stones which have been overlooked detected; (*c*) treatment can be instituted to rid the patient of such stone without resort to further operation.

I wish to acknowledge my indebtedness to Dr. R. O'Donoghue and Dr. G. T. Loughborough for their kindness and help with the *x*-ray investigations.

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The Bath Medical Book Society held its hundredth annual meeting on December 13, 1940. The society was founded for the purpose of circulating some of the recently published medical books; each member keeps a book a fortnight and passes it on to the next name on a list arranged so far as possible according to residence. The number of members is limited to twenty-five, and new members are chosen by ballot as vacancies arise. This small society fulfils a useful purpose in the medical life of Bath. Mr. A. Leonard Fuller has served as its honorary secretary for thirty-six years.

DIRECT DRAINAGE OF LUNG CAVITIES IN PULMONARY TUBERCULOSIS

BY

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(WITH SPECIAL PLATE)

The direct drainage of lung cavities, introduced by Prof. Monaldi of the Forlanini Institute in Rome, would appear to offer interesting possibilities in the treatment of lung tuberculosis. Despite the constant improvement in the technique of the different methods of collapse therapy there remain many cases to which these methods cannot be applied. The direct drainage of a pulmonary cavity would seem to be a logical proposition, yet at first the idea of the transpulmonary drainage of a tuberculous cavity must cause some hesitation. The method and the theory on which it is based are founded on conclusions drawn from the work of Prof. Morelli on the mechanism of respiration.

Development of a Cavity

Two factors enter into the development of a lung cavity. The initial process is in the fine bronchioles or alveoli. Tubercles form which coalesce into consolidated areas. If the process is not arrested, caseation and softening, with involvement of the interstitial tissue, lead to the formation of a cavity. This is the first or biological factor. If it remains unchecked by the patient's resistance it will continue to predominate, leading to an extensive caseous process. However, in the great majority of cases the biological factor is modified and signs of defence are observed. Here the mechanical factor comes into play. Cavities, the dimensions of which may vary considerably from time to time, will often be observed in patients whose general condition is good and in whom there are but limited signs of activity. In these cases, in which the importance or variation in dimensions of the cavity would appear to be unaccompanied by proportionate signs of activity, the mechanical and not the biological factor seems to predominate. Poix and Vincent (1938) have studied these variations. The distinction is drawn between these cases and those in which the enlargement of the cavity is accompanied by signs of activity such as fever, increased cough, and sputum. The fluctuation due to the mechanical factor will be discovered radiologically and not clinically.

The traumatism to which a lung cavity is subjected during respiration has been studied by many. During the act of respiration the pressure exerted on the pulmonary parenchyma varies with inspiration and expiration. The lung is also in a state of constant distension. If there is a large drainage bronchus allowing free entrance and outlet the air pressure in a cavity will not be appreciably modified. If there is no drainage bronchus, or if the lumen is small or obstructed, the intracavernous pressure will be influenced during respiration. According to Monaldi, quoted by Arnould (1939), the partly obstructed bronchus will be found in the majority of cases. Even in the case of the large bronchus the passage of secretions can bring about intermittent obstruction. During inspiration the endocavernous pressure is diminished, whereas during expiration it is increased. The tissue surrounding the cavity is subjected to the opposing forces exercised by the expiratory process and the increased pressure in the cavity. The result is the development of atelectasis. The cavity is now less well protected from the traumatism caused by the thoracic traction and pressure during inspiration and expiration than if it were surrounded by healthy air-containing and elastic lung tissue. The increased traumatism leads to increased pressure on the pericavernous tissue, and so the atelectasis becomes still more pronounced. Monaldi has also drawn attention to the diminished circulation in atelectatic tissue. Reduced blood supply to the cavity hinders the patient's resistance and so facilitates the inflammatory factor.

The "fibrous ring" surrounding a cavity in relatively healthy lung tissue, sometimes alluded to in the interpretation of the pulmonary radiograph, would appear to represent atelectatic tissue and not fibrosis. It would seem clear that the permeability of the drainage bronchus plays a very important part. Some writers claim that it is an essential condition to the closing of the cavity. In fact, radiological observation shows that spontaneous closure is often preceded by the formation of an endocavernous fluid level. According to Corryllos, quoted by Arnould, the occlusion of the bronchus is followed by absorption of the air in the cavity, bringing about its diminution and closure. Nevertheless it cannot be readily accepted that the occlusion of the bronchus is essential. *X*-ray observation in a case of spontaneous healing will generally show that sputum diminishes in proportion to the diminution in the size of a cavity, and does not disappear until the cavity has finally closed.

A cavity must be possessed of a retractile quality if it is to close. The presence of atelectasis in surrounding tissue would appear to answer this need best. Post-mortem examination has proved the presence of pericavernous atelectasis. It may also be recognized in the radiograph. The rapid spontaneous closing of some large cavities would seem to be best explained by re-expansion of atelectatic tissue. The theory according to which the closing of a cavity is brought about by the contraction of fibrotic tissue has not been borne out by post-mortem findings. Rist and Rolland, quoted by Poix and Vincent, have described their post-mortem findings in the case of a large cavity which had completely closed. They found no evidence of fibrosis and no trace of the cavity. Similar observations have been presented by many others. Where fibrosis is observed it is usually star-shaped and does not correspond to the contraction of a fibrotic ring.

The disappearance of a cavity treated by an artificial pneumothorax maintained at negative pressures may be attributed to the re-expansion of collapsed alveoli. Collapse treatment has as one of its principal objects the elimination of respiratory traumatism, which, as has been seen, plays an important part in pericavernous atelectasis.

The cavity in which the mechanical factor has predominated is possessed of a retractile quality represented by atelectatic tissue. The cavity in which the biological element has been preponderant has not this quality. Such is the case in excavations in large caseous processes. The cavity in the advanced fibrotic lung also lacks this retractile quality, although the application of Monaldi's method to such cases will often show that there still remains a surprising possibility of retraction. The direct drainage of a tuberculous pulmonary cavity aims at combating the mechanical factor in the formation and maintenance of a cavity by producing a negative endocavernous pressure, facilitating the re-expansion of the peripheral atelectatic tissue, and so neutralizing respiratory traumatism. It seeks to overcome the biological factor by giving free outlet to inflammatory matter and debris and so deterging the surfaces of the cavity.

Drainage Technique

The instrument used consists of a trocar and cannula. The trocar is so constructed as to allow of the passage of

air between it and the cannula. The cannula has a lateral arm permitting its connexion to the manometer of a pneumothorax apparatus. The point of the trocar is but slightly bevelled.

If the technique of the method would appear simple, a strict attention to detail is essential. In the first place, it is of paramount importance to make sure that the lung is adherent to the parietal pleura in the region of the cavity. Only in the presence of adherent pleura may the method be applied. The extent of the adhesions must be such as to preclude all possibility of communication with an area where the lung is not adherent. Were this precaution not observed a pleuro-pulmonary fistula with all its consequences would be the result. The position of the cavity must be carefully studied by screen examination, as also on the radiograph. Tomographic plates will help towards a very precise location. The patient is placed preferably on an *x*-ray table permitting radiological control at each stage of the operation. The point of entry chosen will be between the anterior axillary line and the sternum, as this will best facilitate adoption of the recumbent position in the after-treatment. Most often the cavity is situated posteriorly, which is an advantage, as the drain will thus be introduced through healthy and elastic lung tissue. This will help to avoid the possibility of fistula and the escape of air around the drain. With the entry point decided on, the intercostal space is anaesthetized. The depth and position of the cavity are now controlled by the introduction of a long fine needle connected to a syringe. The syringe should be filled with fluid so as to avoid the possibility of introducing air into a blood vessel. As the needle is pushed gradually towards the cavity traction is made on the piston of the syringe. The free entry of blood into the syringe would indicate the presence of an important vessel. In this event the needle must be withdrawn and the entry point changed with a view to finding a less dangerous route. When the cavity is reached air can be drawn freely into the syringe. The direction of the needle is controlled by screen examination. If during the introduction of the needle no important blood vessel has been encountered the cannula may be pushed into the cavity. The direction and degree of penetration of the fine needle should be carefully noted before it is withdrawn. The track of the fine needle must be meticulously followed during the introduction of the cannula. While the cannula is being introduced the manometer is kept under observation. Small movements will be caused by the passage through alveoli. When the cavity is reached well-marked oscillations will be noted on the manometer. The correct penetration of the instrument may be controlled by the fluorescent screen. The trocar is now withdrawn. A suitable Nélaton catheter, No. 12, is introduced and the cannula is withdrawn carefully so as to leave the drain in position. The catheter is fixed to the chest by means of two strands of silk, twisted round each other and between which the drain is passed. The ends of the silk strands are fixed to the skin by adhesive plaster. A dressing is now applied, and the end of the drain is enveloped in the dressing.

The aspiration is not begun until twenty-four hours later. It may be effected by means of a small electric pump or a filter pump. The aspiration obtained by the difference of level between two vessels connected together, one of them filled with water, may be employed. This is an inconvenient method, as constant manipulation is necessary in order to maintain the difference of level. The electric pump is also suitable, but the apparatus tends to heat when used continually. The filter pump is the most convenient method of aspiration. The drain is connected to the aspirating apparatus shown in the diagram. It consists of a glass cylinder partially filled with water, approximately 75 cm. in length and 3 cm. in diameter. It is closed by a rubber stopper with two perforations, through which two glass tubes are passed. The short tube is connected to the closed aspirating circuit. The upper extremity of the long tube communicates freely with the atmosphere, whilst the lower extremity is plunged in the water of the cylinder. The degree of immersion determines the maximum depression desired. When the aspiration tends to become too strong atmospheric air is sucked through the long tube, thus limiting the negative pressure in the aspirating circuit.

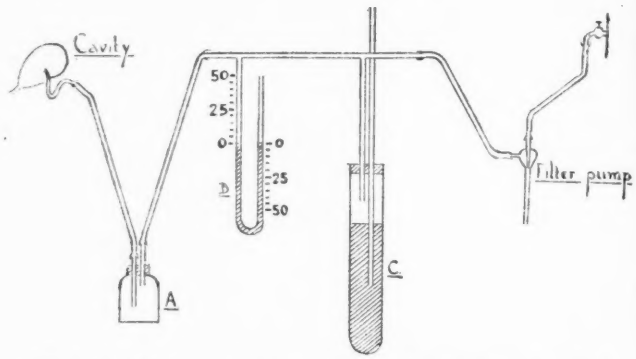

FIG. A.—Diagram showing method of drainage. A: Glass bottle which receives the matter aspirated from the cavity. B: Manometer graduated in c.cm. of water. C: Pressure controller (Jeanneret and Joyet, 1939).

During the first few days after the introduction of the drain a febrile reaction is generally observed. The matter aspirated, as also the sputum, is often blood-stained. It may be added, however, that often no trace of blood is seen.

The dressing must be changed daily, as strict asepsis is indispensable. The aspiration must be conducted very carefully and should be maintained night and day. It is usual to begin with a pressure of approximately -5. It must not be increased so long as the sputum or aspirated matter is coloured red. Once all signs of haemorrhage have ceased the pressure may be raised so as to reach -15 at the end of ten days. The degree of aspiration must depend on the clinical and radiological findings. If the suction is too intense the lung surrounding the cavity will tend to become opaque. This opacity would appear to be due to alveolar secretion, and diminishes when the aspiration is reduced. Care must be taken to avoid this complication, which could become very serious in cases in which the respiratory surface is already inadequate or in which the treatment is bilateral. The sputum, if it had its sole origin in the cavity treated, usually disappears almost at once. If not, it must be seen whether the drain is placed in its proper position in the cavity.

Frequent radiological examinations are necessary in order to carry out the treatment. At first the aspirated matter will be thick and the drain often become blocked. It may usually be cleared by means of a syringe. After the first few days the secretions become gradually more fluid, and finally all sediment tends to disappear. The suction may be increased gradually. The possibility of reaching a very negative pressure will depend on the permeability of the drainage bronchus. If the drainage bronchus closes a maximal pressure of -50 may be reached. In practice it would seem that the optimum figure is in the region of -20 to -30.

The decision to remove the drain requires careful consideration. It is not easy to decide whether the cavity has completely disappeared. Examination of the aspirated fluid will help in the decision. It will also be observed

that the drain may even hinder final disappearance of the cavity. When it is decided to withdraw the drain it is best to do so gradually.

Cases in which to apply Drainage

This method of drainage will be best applied to cases in which, as has been previously mentioned, the mechanical factor has predominated and in which there is peri-cavernous atelectasis. It may be employed to advantage in many cases in which the tissue surrounding the cavity appears to be fibrous. Its application in such cases has shown that there often remains a surprising possibility of retraction. In the case of some giant cavities, in which treatment by aspiration offers but slender hope of a complete result, drainage treatment can improve the patient's general condition and, by reducing the size of the cavity, render surgery more feasible.

In patients subject to frequent haemoptysis or in cases with marked dyspnoea the decision to apply the method must necessarily be a difficult one. A cavity of too small dimensions would make the introduction of the drain impossible. Cavities situated close to the hilus or to the mediastinum should generally be avoided, as their position renders the operation too dangerous. Provided that the details of the technique are carefully observed and that the respiratory balance is not too greatly compromised, the method may be applied to both lungs simultaneously. It may be added that in the case of a cavity with a free drainage bronchus a too rapid aspiration may lead to dyspnoea, sore throat, and dryness of the mouth. The dangers suggested by the puncture of the lung would appear to be attenuated by practice of the method. The risk of embolism is lessened by keeping the exploratory needle and syringe filled with fluid. Exploration by means of this needle will show whether there is an important vessel in the proposed course of the trocar and cannula. Haemorrhage would nevertheless appear to be the principal danger, and its possibility must be constantly borne in mind. The risk of a pleuro-pulmonary fistula is ruled out by making sure that the pleura is adherent. In practice the external fistula causes no trouble if the dressings are carried out often enough. This fistula tends to close round the drain rather than to increase in diameter.

It is as yet impossible to appreciate fully every aspect of Monaldi's method. The question of the complete and durable closure of the cavity can only be answered by fuller observation. That remarkable and rapid improvement may be obtained would appear to be certain. This result can render collapse treatment feasible, and therein would appear to be one of the chief indications for the use of this method.

Case Reports

Case 1.—Large cavity of right apex. Complete rest treatment extending over a period of sixteen months. A.P. impossible. Phrenic evulsion done without result. Surgical treatment impracticable. Fig. 1 on Plate shows size of cavity eight days before operation. Drain introduced July 12, 1939. Febrile reaction reaching 102° F.; temperature normal five days later. Aspirated matter slightly blood-stained during first three days. Immediate cessation of sputum. Fig. 2, taken December 6, 1939, shows that the cavity has almost completely disappeared. General condition now excellent; aspirated matter very fluid, and negative on repeated analysis; wound in good condition.

Case 2.—Giant cavity of upper third of left lung. Smaller cavity in right apex. A.P. impossible. Surgical treatment impracticable. Fig. 3 shows size of cavity seventeen days before operation. Drain introduced August 14, 1939. Slight febrile reaction lasting four days. Fig. 4 taken January 30, 1940: the cavity is still visible, but has greatly diminished in size; wound in good condition.

Case 3.—Giant cavity in upper portion of left lung. A.P. impossible. Surgical treatment impracticable. Drain introduced October 23, 1939. Febrile reaction reaching 103° F., lasting three days. Fig. 5 shows cavity eight days after drainage. There is a small cavity just below, and masked by, the cavity treated. Fig. 6, taken on January 30, 1940, shows that the cavity has almost disappeared; the smaller cavity, no longer masked, is more visible; and the wound is in good condition.

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FEMINISM

BY

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(WITH SPECIAL PLATE)

In contrast to our series of cases of virilism in women which we have published at different times from Charing Cross Hospital we have for several years been observing the rarer and opposite condition of feminism in the male, a case of which is here described.

Case Report

The patient, who first presented himself in 1933, was so distressed about himself in 1939 that he threatened to take his life unless something was done. His plight may best be described in his own words:

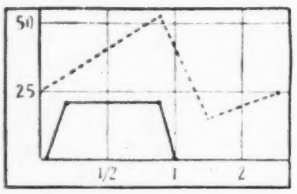
> "Since the age of 13 I have never developed; my voice has not broken, I am physically still a small boy, and in the present state have not a man's strength and can never hope to get married, although I do get sexual feelings at periods. I cannot associate with men because they think I am a lad and address me as 'Son,' 'Lad,' or 'Boy'; neither can I associate with youths, as I have got past their stage of life mentally and they are in fact too full of life for me. I have tried many treatments, but to no avail, and I think I have to go through life as another Peter Pan, the boy who never grew up. I have never shaved yet, and am practically hair-free on the body. I am beginning to dread the thought of going through life as a bachelor. I have seen other boys grow up, get married, and have children, and I would like to be the same as they."

When seen in 1933 he was 32 years old. His family history was normal, and his brother was the champion boxer of the Southern Command. At the age of 12 he had had diphtheria, and says that he had also had what was called mumps when 12, and again at 13 and 14, but it did not involve the testes. He never developed normally at puberty, and at the age of 22 began to grow a few hairs; he has never shaved, his voice has not dropped, and when 23 he grew five inches in height.

Physically his bodily contour was then distinctly feminine; he was 5 ft. 5 in. in height, his weight 8 st. 5 lb., and his pelvic girdle (31 in.) wider than the pectoral (30 in.). His external genitalia were small—the penis was about 2 in. long, his testes were descended and about the size of hazel-nuts—and he had a few sparse pubic hairs. In his manner this young man gave the impression that he was still psychologically at the age just previous to puberty. His sexuality was more or less neuter; he had an occasional erection but never any emissions. His mentality was good, but his temperament somewhat unstable; he was self-conscious, timid, and nervous in the dark. He was a house-painter and decorator by trade, and was keen on swimming. Although his skin was smooth there was no breast enlargement or that sleek adiposity of the eunuchoid type which we have observed in cases of bilateral torsion of the testes at an early age, so that it appeared improbable that he had suffered from orchitis as a result of mumps.

In 1933 he was admitted to hospital, and investigations gave the following results:

A blood analysis showed: urea, 29 mg. per 100 c.cm.; cholesterol, 0.13%; phosphorus, 5.28 mg. per 100 c.cm.; calcium, 9.52 mg. per 100 c.cm. A radiograph of the pituitary fossa was normal. A fractional test meal gave the following result:



Uroselectan *x*-ray findings were normal, but there was a calcified mass below the right kidney.

A blood count showed: R.B.C. 4,880,000 per c.mm.; Hb. 94%; C.I., 0.9; W.B.C., 7,200 per c.mm.; polymorphonuclears 57.34%, large hyalines 6.00%, small and large lymphocytes 36.37%. Blood platelets amounted to 200,000 per c.mm., and the coagulation time was 4½ minutes.

The Aschheim-Zondek and Wassermann reactions were negative. The basal metabolic rate was 7%.

He had previously been treated with hormones for two years at another hospital, and we had decided that should a suitable patient present himself at hospital offering testicular grafts we should adopt this form of treatment. He then had injections of testosterone, and in 1934 bilateral testicular grafts were implanted in both his flanks at the Middlesex Hospital; early in 1939 he had "tablets" placed under the skin of his abdominal wall.

In May, 1939, he presented himself again at our hospital. His condition was *in statu quo*, and in view of his previous treatment we suggested that his adrenal cortex might be involved in the syndrome, and although we could make no promise of a satisfactory result he welcomed the idea of unilateral adrenalectomy, realizing that it was entirely in the nature of a test case. He was now readmitted into hospital. Laparotomy revealed that both adrenals were larger than normal. A fortnight later (June 16) the left adrenal was removed and the patient made a satisfactory recovery. The immediate result of operation was a chordee which lasted for a day and a half.

Histological examination by Dr. Vines showed that the cortical cells were normal, but that they gave the positive Ponceau-fuchsin reaction, but of moderate degree, which we have previously illustrated in the *British Journal of Surgery* (May, 1939) in association with different degrees of virilism in the female (Broster, 1939).

In addition we were also enabled, as a result of the Wakefield Research Fund, to carry out biochemical tests. Dr. Patterson's results from urinary analyses may be tabulated as follows (Broster and others, 1938):

	Pre-operative		Post-operative
	Mg. Sterone per diem		Mg. Sterone per diem
Sterone Colour Test:			
22/5/39	7.8	23/6/39	4.0
23/5/39	6.7	27/6/39	5.2
24/5/39	8.5	28/6/39	4.3
25/5/39	6.9	3/7/39	5.9
26/5/39	8.5	15/3/40	8.6
30/5/39	7.1		
31/5/39	8.8		
Average ..	7.7	Average ..	5.6
	I.U. per diem		I.U. per diem
Biological Capon Test: Collection 22-25/5/39	28	Collection 23-28/6/39	18
Oestrin: Collection 22-25/5/39	85	Collection 23-28/6/39	83

The normal control figures for the colour test in the male are 9 to 20 mg. sterone daily, and in the female 4 to 14.6 mg. daily; so it will be seen that the average figure in this case is definitely on the low side. We ourselves have not done nearly enough controls to establish the exact normal ranges for androgens as determined by the capon test, but, taking a line through other people's results obtained from fairly extensive investigations into the normal, it would appear that the normal male range is something like 20 to 100 units a day, and the normal female 10 to 50 units. The oestrin figures show that there was no excessive output and no appreciable alteration as a result of the operation.

Clinical After-results

A letter received from the patient three weeks after the operation said: "I am certain there is already an alteration in my voice; hair has grown on my hands and on my arms, now an inch long." A month later he reported to the out-patient department; his voice had dropped, and he had shaved three times. It was not till January, 1940, that he reported again, looking much more manly and confident. He asserted that he had grown an inch since his operation, his appetite was enormous, and he had put on a stone in weight. The scrotal sacs were fuller and corrugated much in the same way as obtains after pregnyl injections. His penis had doubled in size; there had been erections but no emissions.

He was seen about the time of his operation and again in February, 1940, by my psychological colleague Dr. Clifford Allen, who reported:

"He has lost his shyness and will approach anyone without nervousness. He is more fidgety but less energetic at his work, and more keen to enjoy his pleasure. His moods fluctuate rather more than before his operation, but mainly concerning the possibility of a cure of his condition. There is no doubt that his operation has made a considerable difference in his personality. He is bolder, more self-reliant and self-assertive, and less secretive. He has attempted more sexually, and with success, than ever before, and is definitely more normally heterosexually inclined. Even his dreams and fantasies show this. The exact significance of his emotional shifting from his work to his pleasure is not yet clear."

Discussion

The detailed investigations of this case have been set forth in accordance with the routine which we had established for virilism in women. It came both as a surprise and a paradox that the opposite condition of feminism of the male should resemble the masculinization of the female so closely, both with regard to the presence of the Ponceau-fuchsin stain in the cells of the adrenal cortex and in the decrease in the amount of sterone after operation. It may be, as Vines suggests, that in all these cases of sexual disturbance of apparent adrenal origin there is an underlying dispituitarism which we have been unable to assess; but from a purely chemical point of view the findings might be harmonized with the theory, which has been advanced from time to time in regard to steroid metabolism, of the existence of a common precursor of androgenic, oestrogenic, and adreno-cortical hormones.

These comparative investigations are of considerable interest to the question of androgenic activity in both sexes from the adreno-cortical point of view, but although improvement has been maintained further progress does not seem likely after a year, and his age is against him. How far the adrenal cortex alone is responsible for the syndrome and whether secondary endocrine compensation takes place are matters for the future to decide.

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Immunization against diphtheria of all children from 1 to 10 years and the use of Credé's method for the newborn have been made compulsory in the municipal institutions of Buenos Aires.

A PROSTHETIC ULCER OF THE MOUTH

BY

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(WITH SPECIAL PLATE)

Benign tumours of the buccal cavity are uncommon. In two recent years 660 cases of disease of the mouth were examined at the Holt Radium Institute, and only 80 of them were non-malignant. Of these non-malignant cases 20 proved to be benign tumours and the remainder were inflammatory. Malignant growths therefore formed 97% of tumours in the buccal cavity, and 3% were innocent. These innocent tumours are important, however, because unless recognized they may receive unnecessarily drastic treatment, and if radiotherapy is used there will be little effect upon the growth.

One tumour, running true to type and possessing well-defined characteristics, has occurred often enough to merit description, especially as it has been invariably suspected of malignancy. Current surgical textbooks and literature do not mention this swelling, but a search through dental writings has revealed a description of a case by Thoma (1934).

The swelling lies in the sulcus between the cheek or lip and the gum, and is situated anteriorly to one or other side of the midline. It is much more common in the lower than in the upper jaw, and in women than in men. A series of ridges are formed which run parallel to the line of the alveolus and are slightly deeper in colour than the surrounding mucosa (Plate, Figs. 1 and 2). There are always two or more ridges, about an eighth of an inch in thickness and as much as a quarter of an inch in height, and after running for an inch or more along the gum they gradually slope away into the normal tissues. The ridges are covered with mucous membrane, but in the furrows ulceration exists in the deeper parts. On palpation the tumour is surprisingly hard, and this undoubtedly gives rise to the suspicion of malignancy. Very little movement on the deeper tissues can be detected because the swelling is anchored to the alveolus by the innermost furrow. There is little tenderness except during attacks of inflammation, which occur at infrequent intervals. It is only during these attacks that pain is experienced, and the main complaint is inconvenience, with a feeling that "this swelling ought to be attended to because it might lead to cancer." The patient is past middle life, and the gum is always edentulous. Advanced atrophy of the alveolus makes the denture very loose-fitting, and it will slip into any one of the furrows without inconvenience to the patient. The denture is an old one and has never been remodelled. The atrophy of the edentulous alveolus and the wearing of the loose-fitting denture are the cause of this variety of prosthetic ulcer, the "hit-or-miss" fit explaining the number of the ridges.

On microscopical examination the epithelial surface is irregular, but, although it extends fairly deeply into the underlying stroma, it is everywhere limited by a definite membrana propria. The underlying stroma shows scattered blood sinuses with occasional foci of lymphoid cells indicative of chronic inflammation.

The diagnosis from carcinoma is not difficult, but the patient usually presents himself when there is an acute attack of inflammation. The tumour is then reddened and angry-looking, with ulceration between the ridges. He has discarded his denture, and therefore the mechanical cause of the condition is not at once evident. The extreme hardness of the swelling and the induration of the base due to the ulceration in the furrows still further suggest the diagnosis of malignancy. On the other hand, the growth has been present many months—often one or two years. The hypertrophied portions are not friable, and bleeding does not occur. The ulceration is confined to the deepest portions of the furrows, and if the denture is obtained it will be found to fit accurately in any furrow. Finally there is no involvement of the regional lymphatic glands.

I have had 12 cases of this condition under my care in the past seven years, 9 of the patients being females and 3 males. Their ages ranged from 41 to 75 years, the mean being towards the end of the sixth decade. All were completely edentulous, and the original false teeth with which they had been supplied had been worn from five to twenty-six years. The atrophy of the alveoli was very advanced, the denture fitting loosely and slipping about whilst the patient was talking. Normally the lower denture in an edentulous mouth is much less secure than the upper, and this additional factor of instability would explain why in 10 cases the lower jaw was affected and in only 2 the upper. The tumours had been present from two months to five years, with the majority of patients seeking advice from six months to two years after noticing a swelling. In 2 cases the onset was painful owing to the pressure of the denture, but pain was infrequent and never severe. None of the patients suffered from gingivitis or stomatitis, nor was there any evidence of previous syphilitic infection.

The histories of the two cases illustrated are as follows:

Case 1.—A shopkeeper aged 62 had worn the same dentures for fifteen years. Two years before attending the hospital he developed a painful swelling "like a gumboil" on the inner aspect of the left lower lip. The swelling slowly increased in size, and was painless except when attacks of inflammation occurred. It had always been hard; there was no discharge and no bleeding. The patient was a teetotaller, did not smoke, and the Wassermann reaction was negative. On examination there was a typical prosthetic ulcer in the left lower alveolar sulcus 2.5 by 1.5 cm. in size (Plate, Figs. 1 and 2). The lower denture was very loose-fitting and slipped in and out of the furrows of the ulcer. There were no palpable lymphatic glands. The ulcer was excised with the diathermy loop and microscopical examination confirmed the clinical diagnosis. The wound healed in six weeks and the wearing of the remodelled dentures was resumed six months afterwards. It is now seven years since the operation, and there has been no recurrence.

Case 2.—A housewife aged 45 had had all her teeth extracted nine years previously and the dentures she then obtained had not been altered. Twelve months before coming to hospital she noticed a small hard painless swelling on the inner side of the left upper lip (Fig. 3). This swelling had doubled in size in the twelvemonth and was painless except when the teeth were pressed into it. There was no discharge or bleeding. She did not smoke or take any form of alcohol, and there was no suggestion of syphilis. On examination a typical prosthetic ulcer was found in the left upper alveolar sulcus 2.5 cm. in length. The upper denture was loose and slipped down whilst the patient was talking. There was no enlargement of the neighbouring lymphatic glands. The ulcer was removed by diathermy in November, 1934, and the wound healed in just over a month. Histological examination confirmed the clinical diagnosis and there has been no recurrence. New dentures were obtained and worn six months after operation.

The best treatment proved to be excision of the ridges with the diathermy loop, and the base of the tumour was very lightly coagulated with the diathermy button (evipan anaesthesia was used). Healing took place in about a month, with very little scarring, the only treatment

required after operation being bland mouth washes. All the patients were warned before operation that they would require a new denture or remodelling of the old one, and wearing of the teeth has been deferred until six months after the healing of the wound. One case had been previously treated elsewhere as malignant disease, and received an efficient implant of radium element giving a dosage of 6,000 r. It was interesting to find that the tumour had proved completely resistant, although a certain amount of troublesome necrosis had occurred in surrounding normal tissue.

Summary

A type of benign prosthetic ulcer of the mouth is described.

It is suggested that its relative frequency, trueness to type, and well-defined characteristics warrant its recognition as a definite clinical entity.

The causation, pathology, and treatment are discussed.

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Clinical Memoranda

Irreducible Intussusception in a Baby, treated by Resection: Recovery

(WITH SPECIAL PLATE)

The problem of irreducible intussusception has evoked a variety of surgical methods, all more or less unsuccessful. In small children the mortality is very high. Perrin and Lindsay (1921) in a series of 400 consecutive cases of intussusception in the London Hospital give these mortality figures for irreducible cases: all cases treated by resection, 70% ; cases under 3 years old treated by resection, 100% ; cases treated by other methods, 100%. The conclusion one draws is that resection, though very unlikely to succeed, is the only method worth attempting. The following case was successfully treated by resection in Addenbrooke's Hospital in May, 1940.

CASE RECORD

The patient was a boy of 18 months, previously quite well apart from bronchitis. He was admitted with a history of abdominal pain, severe vomiting, and absolute constipation for four days in spite of enemas. Castor oil had been given at the onset. He had been passing small quantities of blood for two days. On admission he was dehydrated, the abdomen was distended, with a step-ladder pattern on it, and a mass could be felt in the right iliac fossa. The pulse was 160.

Operation was carried out under ether anaesthesia. An ileo-colic intussusception was found, beginning about twelve inches above the ileo-caecal valve and extending to the hepatic flexure. As only a few inches of this could be reduced and the part was gangrenous and was considered quite unviable the whole mass was resected between clamps. Anastomosis was done between the side wall of the ileum above the closed end and the open end of the colon a short distance below the hepatic flexure. The child's condition was not alarming at the end of this operation.

Intravenous saline and glucose were given continuously for six days, the child's leg being immobilized in plaster for this purpose. A nasal tube was passed and the stomach contents were removed. The fluid withdrawn was at first offensive and dark brown, and it remained so for three days. On the second day he passed an offensive dark-coloured stool. On the third day the abdomen was less distended and he had a mild attack of diarrhoea. On the fourth day he was taking half an ounce of fluid hourly by the mouth. Convalescence was complicated by a mild attack of measles, with bronchitis and otitis media, but he was in good health when he left the hospital four weeks after the operation.

Anterior and posterior views of the resected piece of bowel are shown in Figs. 1 and 2 of the Plate.

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Resident Surgical Officer, Addenbrooke's Hospital, Cambridge.

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Multiple Foetal Abnormalities

(WITH SPECIAL PLATE)

In view of the unusual and extensive type of abnormalities in the case described, I consider that it merits record. Careful search in the literature through the good offices of the librarian of the B.M.A. has failed to reveal a similar case with such extensive deformity.

CASE REPORT

Mrs. ——, aged 33, has an only child of 4 years, who is apparently normal in every way. Since this child was born she has had a normal menstrual history, and used no contraceptives. She can recall no personal accident or untoward incident during the second pregnancy such as might give rise to a monster.

The confinement, at a maternity home, was a breech presentation with extended legs. No foetal heart sounds were heard. Under general anaesthesia a foot was brought down, the breech delivered, and the first abnormality displayed itself as a hernia of the liver covered by peritoneum through the abdominal wall (see Plate). There was a deficiency in the chest wall, involving the third, fourth, and fifth ribs, through which the heart and pericardial sac protruded. Finally careful delivery of the head showed a condition of hernia cerebri. The vertex of the foetal skull was absent and the free skull border appeared continuous and apparently fused with the amniotic membrane, which enclosed the brain substance. The brain was normal on section. Beyond this was the placenta, firmly attached. The face showed double harelip and cleft palate. The foetal skin was clean and intact and of normal appearance. The foetus showed no sign of life. There was at least fourteen to eighteen pints of liquor amnii.

Ante-natal care had shown a consistently normal urine and blood pressure, with breech presentation, but this was not interfered with.

I beg to thank Dr. Burn, medical officer of health, Barnsley, for the photograph and for his general interest in the case; also Dr. Rose.

Barnsley. A. B. SLACK, M.B., Ch.B.

A Case of Unilateral Twin Ectopic Pregnancy

(WITH SPECIAL PLATE)

Unilateral twin ectopic pregnancy is a comparatively rare condition. Falk and Blinick (1938), having reviewed the literature and described two cases of their own, state that 65 authentic cases had been reported. Anderson (1939) describes a case of his own.

CASE REPORT

A woman aged 24 was admitted to the North Riding Infirmary, Middlesbrough, on August 20, 1940, with the following history. She vomited in the morning and had pain in both sides of the lower abdomen which sometimes passed round to the back. This pain was severe and persistent, and on admission rose in the abdomen almost to the costal margin. There was a history of two months' amenorrhoea. She had had two children, the youngest being 18 months old.

On examination the patient was markedly exsanguinated, cold, and sweating, and the pulse was rapid and weak. There was a slight blood-stained discharge per vaginam. The diagnosis of a ruptured tubal pregnancy was made and the patient was taken to the theatre immediately. Under general anaesthesia the abdomen was opened and the diagnosis confirmed. The peritoneal cavity was filled with blood ; the right Fallopian tube was ruptured and the bag of membranes was found intact. Right salpingectomy was performed. The ovaries and left Fallopian tube were normal. An autotransfusion of blood was carried out. When the unruptured sac was opened clear

liquor amnii escaped, and the condition was seen to be that of uniovular twin pregnancy (see Plate).

The patient made an uneventful recovery and was discharged from hospital twenty-two days after operation.

I am indebted to Mr. D. C. Dickson for permission to publish this case.

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Twin Pregnancy after the Menopause

The following case may merit record by reason of two unusual features—namely, the occurrence of conception after the menopause and the birth of twins when an *x*-ray photograph, taken about the eighth month of gestation, showed only one foetus.

CASE REPORT

A woman aged 41 had previously had three single pregnancies, her youngest child being 8 years old. Her mother had had three sets of twins and a sister one set, the latter being stillborn. The patient menstruated regularly up to the age of 38 and thereafter at increasingly infrequent intervals and with decreasing loss until about the middle of 1939, when the periods entirely ceased. About June, 1938, she began to have certain menopausal symptoms—e.g., hot flushes, slight vertiginous attacks—and believing herself to have outrun her period of productiveness relaxed the contraceptive measures she had employed since the birth of her last child.

The first intimation that she was pregnant occurred when she observed foetal movements; she reported for examination on March 15, 1940, and was considered to be between four and five months pregnant. Later, on account of undue abdominal enlargement and the multiplicity of foetal limbs, the possibility of a multiple pregnancy was entertained, although at no time could more than one foetal head be palpated. At about the eighth month an *x*-ray photograph clearly showed a single vertex presentation. On the strength of this the woman was informed to expect only one child, and made her plans accordingly.

At term abdominal distension was marked, but this seemed to be accounted for by a fair degree of polyhydramnios. Labour was short and easy. A few mild abdominal pains during the night were followed by one or two short decisive pains in the morning, and the expulsion, vertex first, of a living male child weighing 5¼ lb. No escape of waters was noticed previous to the birth of this child. A short umbilical cord was ligated, and the arrival of the placenta awaited. The uterus at this time was disproportionately large and very hard, and for the next half-hour the mother experienced moderately severe bearing-down pains, in spite of which the placenta failed to appear. The pains ceased more or less abruptly, and it was then found that there was a bag of membranes high in the vagina, with a foetal head above it. The membranes ruptured on slight pressure, releasing a large gush of waters. The pains immediately reappeared, and a living male of 5½ lb. was expelled, vertex first, quickly followed by a uniovular placenta.

That conception can occur after the onset of climacteric amenorrhoea is an established medical fact, but in view of the popular belief that this symptom marks the end of reproductive life it would be interesting to know if there are any criteria which unquestionably denote that further production is impossible. If none exist it means that a woman who has planned the size of her family over many years may be faced with a perhaps unwelcome addition at a time when she is less fitted for the extra responsibility, or alternatively that she must carry contraception into her dotage.

With regard to the radiograph, I have eliminated any possibility of exchange of plates, and, in view of the presumed unimpeachableness of the *x*-ray plate in the diagnosis of multiple pregnancy I should be interested if any of your readers can offer an explanation.

I am indebted to Dr. A. I. Maclean of Newton-le-Willows for permission to publish this case, which I saw in his absence.

Manchester. LESLIE BALLON, L.R.C.P. & S.Ed.

Reviews

CHARLES WATERTON

The Squire of Walton Hall. The Life of Charles Waterton. By Philip Gosse. (Pp. 324; 1 colour plate and 7 half-tone illustrations. 15s. net.) London, Toronto, Melbourne, and Sydney: Cassell and Co., Ltd. 1940.

The name of Charles Waterton is known to everyone who loves to read of travels in unknown countries. He wrote of his wanderings in South America, where he went as a young man to get curare, or wourali, the native arrow poison used in British Guiana, which he thought might be useful in the treatment of hydrophobia. The joys of travel became a part of himself, and during the remainder of his life he was rarely at home for any long period. The Rev. J. G. Wood and Sir Norman Moore have given accounts of him, but he had no connected biography until Dr. Philip Gosse wrote this excellent account of *The Squire of Walton Hall*. Born in 1782, he died in 1865. Waterton came of an old Yorkshire family and was endowed with a competence which enabled him to maintain his position as "the Squire." Dr. Gosse shows him as a man of many parts. A lover of birds and trees, he was the first to make the park round Walton Hall, his ancestral home, into a sanctuary for birds. He was a skilled taxidermist, a naturalist without much scientific knowledge, a Roman Catholic, adhering strictly to the old faith, and of a freakish humour. Had he been given the opportunity he might have done much to help in the advances made by his contemporaries Darwin, Wallace, and Huxley, but he was lacking in a scientific training. For medical men his methods are full of interest. Dr. Hobson, his physician, who practised at Leeds, records that he saw Waterton, then aged 77, scratch the back of his head with his right great toe. His toes indeed must have been prehensile, for to the end of his life he was active in climbing tall trees. During his early life in the South American forests he walked barefoot and does not appear to have felt pain or what to most people would have been extreme discomfort. He slept habitually on the floor of an attic at Walton Hall with a block of wood as a pillow and wrapped himself in a cape for covering. He ate but little and, on advice given to him when a young man by Sir Joseph Banks, he abstained from every form of alcohol. He suffered from repeated attacks of ague, for the relief of which he took Jesuits' bark, bled himself copiously and repeatedly, often with a blunt lancet, and purged himself with strong cathartics; yet in spite of it all he lived into his eighty-third year.

Dr. Philip Gosse has written an interesting book which will be read by different classes of readers—by some for the accounts of the travels, by others for the portrait of an unusual personality. The notes made by Sir Norman Moore, some of which were utilized in the *Dictionary of National Biography*, have been placed at the disposal of Dr. Gosse by Lady and Sir Alan Moore. Incidentally, it is stated in the volume that Sir Norman Moore came of Quaker stock. The Moore family is not Quaker, though Sir Norman's mother came of Quaker stock. There are reproductions of Waterton's portrait in the National Portrait Gallery and of Percy Fitzgerald's sketch, which is a caricature.

ONE HUNDRED YEARS OF A MENTAL HOSPITAL

The Chronicle of Crichton Royal. The Story of a Famous Mental Hospital during its First Century. By C. C. Easterbrook, M.A., M.D., F.R.C.P.Ed. (Pp. 675; 104 illustrations. 25s. net, postage 9d. extra.) Dumfries: Courier Press. 1940.

The famous mental hospital, Crichton Royal, Dumfries, was founded one hundred years ago on the initiative of Elizabeth Crichton, a contemporary of Elizabeth Fry and worthy to rank with her in the annals of philanthropy. Mrs. Crichton devoted to this purpose a bequest of about £100,000 of her late husband, Dr. James Crichton. The *Chronicle of Crichton Royal*, which Dr. Easterbrook, who was its physician-superintendent for thirty years, has most painstakingly compiled, is a worthy record of a great institution which was declared at its opening in 1839 to be the most perfect of its kind in Europe. From the first it exemplified the humane and rational treatment of the insane of which Tuke at the Retreat in York and Pinel at the Bicêtre in Paris were pioneers. They had no more convinced disciple than William Alexander Francis Browne, first resident physician at Crichton and father of the late Sir James Crichton-Browne. Dr. Browne not only dispensed almost entirely with mechanical restraints but he was the first to introduce a system of occupations and amusements for patients. In 1843 the first theatrical performance ever given in an asylum—a farce in which all the characters were taken by patients—was staged at Crichton, and in the following year the first journal of prose and poetry contributed by asylum patients was published there. These facts are mentioned by Sir James Crichton-Browne in a foreword which he contributed to this volume just before his death.

Dr. Easterbrook unfolds the story of Crichton year by year, devoting to each year a separate chapter. The contents of each of these hundred short chapters are arranged in a uniform series of sections—the list of trustees, directors, and officers, statistics of patients, particulars of accommodation, innovations in treatment or nursing, clinical and laboratory investigations, commissioners' reports, and any new legislation affecting the treatment of the insane. A footnote of general history is appended to each chapter so as to give a background of contemporary events. Thus it is a book not to be read right through, but a work of reference to be consulted, as it were, either in vertical section for the happenings of a particular year or in horizontal section to trace any particular development. The author, as is natural, devotes a good deal of attention to the period of his own superintendency, 1908–37, during which time 8,500 patients were under treatment. The recovery rate was 37%, with very little difference between male and female. He notes that the recovery rate of the voluntary patients exceeded that of the certified by only 5%—a circumstance to be attributed, he says, to the increasing tendency of patients who would formerly have been certified to seek admission of their own accord. The cases received have been mostly in the middle period of life—from 30 to 60 years of age—and two-thirds of the recoveries have also taken place during that period. The total duration of the mental illness in two-fifths of the recovered cases was less than six months, and in another two-fifths it was between six months and two years.

This *Chronicle* is the product not only of great industry but of affection such as not every institution can command. It includes much small detail—the prowess of the Crichton team in the cricket field, for example, and the renovation of the asylum piggeries—and no pains have been taken to avoid repetition; but it is possible to gather from it a picture of the development of the treatment of mental disorder in Scotland during the last hundred years with a fullness which could not have been obtained in any other way. We are able to trace, from the point of view of one institution, the emergence of new ideas and their fructification and practical results. The well-produced illustrations add to the value of the book.

ST. THOMAS'S REPORTS

St. Thomas's Hospital Reports. Second series. Volume IV. Editors: Prof. O. L. V. S. De Wesselow, Mr. C. Max Page, assisted by Mr. N. R. Barrett, Dr. J. St. C. Elkington, and Dr. A. J. Wrigley. (Pp. 198.) London: St. Thomas's Hospital.

This latest volume in the second series of reports from St. Thomas's Hospital, like its predecessors, reflects recent work in various branches of medicine. Mr. J. S. Richardson first reviews the researches of the last ten or twelve years which have determined the chemical constitution of the male sex hormone. It has now been found that testosterone, the secretion of the interstitial cells of the testes under the influence of the anterior pituitary gonadotrophic hormone, influences some cases of prostatic hypertrophy and benefits some disorders of the breast. Careful selection of cases is, however, necessary. One of the most interesting phenomena in the study of the circulation is the change over from the foetal to extra-uterine life. Prof. Barnard describes the changes leading to the closure of the ductus arteriosus, and Dr. Nosworthy discusses the normal stimulation of breathing, the factors responsible for asphyxia neonatorum, and the principles of active treatment. Few institutions possess the necessary resources to operate an oxygen tent, but Dr. Forest Smith and Prof. McSwiney show that there are many methods of administering with ease and certainty fairly high concentrations of oxygen, which are of proved value in the treatment of shock, abdominal distension, and acute cardiac failure. Mr. Belsey discusses the pathology and treatment of empyema thoracis, and Dr. Griffiths the conditions of insulin resistance in thyrotoxicosis, relating this to altered metabolism of the liver; there appears to be a correlation between insulin resistance and defective synthesis of hippuric acid. Dr. Elkington's contribution on the pathology, clinical picture, and treatment of cerebral abscess is timely; the experiences gained by careful observation and considered judgment in civilian work will be valuable when applied to war injuries. Mr. Neilson points out that orbital inflammation is usually a sequence of nasal infection spreading to the ethmoidal cells and through the periosteum to the orbit; open operation is the method of choice. The administration of food and drink early with massive transfusion by continuous drip have not materially lessened the mortality from gastro-duodenal haemorrhage at St. Thomas's, and Dr. J. B. Harman urges surgical measures. He recognizes, however, the difficulties of diagnosing bleeding ulcer from a state of gastrostaxis, and the technical problems of anaesthesia and operative procedure. These cases are among the most difficult that are encountered in hospital; the degree of exhaustion of the patient when admitted may be so great as to preclude success. More hope for them is to be found in the early diagnosis, efficient treatment, and subsequent supervision of cases of chronic ulcer, which is the precursor of the pernicious type of recurrent haemorrhage. The element thorium is the parent of a series of radio-active products, among them thorium-X, a disintegration product having a half-decay period of

about three and a half days. Thorium-X is a source only of pure alpha-radiation and is manufactured in England. It is used in alcoholic solution, which can be standardized. Dr. Prosser Thomas, who has had personal experience of its use over a period of two years, discusses its application in the treatment of certain skin diseases. Its main value appears to be in superficial skin affections, and encouraging results in the treatment of naevus are reported. Finally, Dr. Vass contributes a useful summary of estimations by chemical and biological assay of the water-soluble vitamins in body fluids.

THE CHILD'S DISCOVERY OF DEATH

The Child's Discovery of Death: A Study in Child Psychology. By Sylvia Anthony, M.A. With an introduction by Prof. J. C. Flügel. (Pp. 231. 11s. 6d. net.) London: Kegan Paul, Trench, Trubner and Co., Ltd.

Mrs. Anthony, an experienced educational psychologist, has set out to elucidate the young child's reaction to death. This is an important line of inquiry because, owing to their own subsequently developed fears and inhibitions, adults indulge in a great deal of muddled thinking on the subject, and so handle children unwisely and in such a way as to implant and perpetuate their own mistaken attitudes. Mrs. Anthony has been brought up along psycho-analytic lines under the influence of Prof. Flügel, who writes a foreword for her and draws the customary parallels between children's fantasies, folk-lore, and traditional legend. To the prejudiced this approach may be repellent, but the more the whole subject is studied from an unbiased standpoint the more it must be realized that the main trouble is the difficulty in expressing in words the reactions of the infancy of both the race and the individual. The reason is that these reactions are much more of the nature of feelings than of ideas, and if "words are given us to hide our feelings" they certainly fail, except in the hands of a few poets, to convey to others an exact description of the non-verbalized attitudes to the fundamentals of experience, and this more particularly in the case of children. Three methods of approach are used: first, "home records" of five families of children taken by the parents; eleven children were so studied. The second—the story-completion test—and the third—special modifications of a well-known intelligence test—were applied in the course of the author's routine work. Case records and examples are given, and the conclusions reached are that:

1. There is little justification for the common parental practice of hiding death from children or of laying a special ban on "gruesome" folk-lore or fairy-tales, since death occurs readily in the fantasies of children, though of course some children develop special anxieties relating to death which require careful handling.

2. There is a tendency for the child to feel a sense of guilt whenever a member of the family dies. This may result in irrational aggressiveness or despondency. To overcome this the child should be allowed to work out his feeling towards the dead person without sentimentality and without shocked astonishment if he expresses hostility to the person who has died.

Many phobias and compulsions arise out of conflicts centred around the fear of death and a desire to rejoin the loved person in death—all very vague and unverbalized, of course, but still felt.

3. It is perfectly legitimate and healthy for a child later to reject fantasies and thoughts of death, but only after he has assimilated this idea or better feeling in respect of it into his consciousness, and this assimilation is necessary whether there has been an actual experience of death in the family or not.

Notes on Books

A second edition has now appeared of the Penguin special *Science in War*, which was the subject of a leading article in our issue of August 3, 1940 (p. 158). A new section under the heading of "Pills and Mixtures" reinforces what was said in an annotation in the *Journal* of December 21 (p. 875) on Rationalization of the British Drug Industry. "The unprogressive character," the writer in *Science in War* states, "of the network that can be called the British Pharmaceutical Industry stands out not only in the lack of major research developments, but also in the internecine competition with which different firms market the same substances bought in a manufactured or semi-manufactured form from a single source. To the utter confusion of the public, and often of doctors too, one drug may be sold by a dozen different firms, under a dozen different names." The writer goes on to point out that the pharmaceutical manufacturing potential in this country is much less than that of a small country like Switzerland, and refers to the high state of organization of the industry in Germany. He believes that the tide of events is pushing the medical services of the country into an organized National Medical Service; with this there must develop a rationalized pharmaceutical service. The British pharmaceutical industry owes a responsibility to itself and to the country to make its contribution to research and marketing in a way that is worthy of the Mother Country of the British Commonwealth of Nations.

We welcome the appearance of the twelfth edition of *Cushny's Pharmacology and Therapeutics*, which since 1926 has been edited by Profs. C. W. EDMUNDS and J. A. GUNN. The three years that have elapsed since the last edition have seen a very rapid advance in many important branches of pharmacology. These changes have called for an extensive revision of the text, but this work has been carried out very thoroughly. Sections dealing with the sulphonamide drugs, barbiturates, vitamins, and certain endocrines have been very largely rewritten. Ever since it first appeared in 1899 this textbook has been recognized as a leading authority on the mode of action of drugs, and the present edition maintains its past reputation. The publishers are J. and A. Churchill and the price is 30s.

Preparations and Appliances

CRYSTOFLAVINE BURN LOTION

Recent discussion on the treatment of burns has brought to prominence the value of the "triple-dye" treatment originated by Aldrich in 1933.[1] One of the drawbacks to tannic acid is its lack of antiseptic power, which is provided by the dyes in the triple-dye mixture, the dyes used being active against both Gram-positive and Gram-negative organisms. Messrs. Crookes Laboratories point out that in addition to their tannic acid jelly (which itself contains the triple-dye mixture incorporated with the tannic acid), they have had available for some time a triple-dye lotion, under the name of crystoflavine burn lotion, designed for the treatment of burns in cases where circumstances or personal preference make it undesirable to use tannic acid. This triple-dye mixture, consisting of brilliant green, gentian violet, and acriflavine, was used with satisfactory experimental results confirmed by clinical experience. Thus Devine[2] treated twenty-seven cases with this mixture, and confirmed its superiority in resisting infection of the burnt area, and also found the mixture to possess a distinct analgesic action. Crystoflavine burn lotion is dabbed or painted on the burn and allowed to dry. A second treatment is given after half an hour. Blisters should be snipped and dead skin removed. No dressing is applied.

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[2] *Med. J. Austral.*, 1939, **1**, 14 and 924.

WAR STRAIN IN CHILDREN

Another Sunday afternoon discussion meeting was held at the Tavistock Clinic on January 12, when an address on "War Strain in Children" was given by Miss A. T. ALCOCK, who is working in the reception area of Huntingdonshire under an appointment by the Ministry of Health whereby "difficult" children among those evacuated from London and the East Coast are referred to her for guidance.

Miss Alcock said that the present war brought a peculiar strain upon children, not only because of the war experience itself but because of separation from home and the loss of the normal sanctions of home environment. In the country the physical condition of the evacuated children was often—though not by any means always—improved, but the strain upon the mental health might be very great. The normal population of her county was 56,000, so that an invasion of 15,000 evacuees meant a great deal of readjustment, not only for the children themselves but for the overworked foster-mothers and also for the local authorities. The main factors which were found to operate were depression consequent upon removal from home surroundings, insecurity in the new environment, transferred adult strain, and, in the case of children evacuated since last September, direct air-raid experience. Children who showed symptoms induced by the shock of bombing usually lost them quite quickly; on the other hand, the symptoms associated with separation from home were much more persistent.

In the sixteen months to the end of 1940 420 cases (249 boys and 171 girls) had been reported as needing child guidance treatment 7% were under school age and 89% in attendance at elementary schools. More than half of them were junior school children—that is to say, aged 7½ to 11½—an age period which had been regarded as relatively free from emotional disturbances. In 80% of the evacuated children referred for guidance the strain could be traced as directly resulting from or aggravated by the war. One of the commonest troubles was enuresis; others were anxiety, depression, faecal incontinence, epileptiform fits, sleep-walking. A large percentage of cases of enuresis responded to a very simple psychotherapy, especially in the form of suggestion, which relieved immediate anxiety and encouraged the child to believe in his ultimate power to control the sphincter. It had proved worth while to focus the suggestion on this question of control, at the same time doing everything possible to relieve anxiety caused by separation from the mother and to encourage independence. The fact of separation from the mother as a contributory cause of enuresis had been clearly established in these cases, in contrast to the experience of normal times of cases in which, on the child's being separated from the mother, bed-wetting no longer occurred. In one case the enuresis was overcome when the child was transferred to a more kindly foster-mother. The puzzling thing about enuresis was that so many simple things cured it. In the case of one little boy aged 5 his foster-mother took him round the farm to where the sow was lying and said, "Now, she would not wet her bed of straw any more than she would fly. And don't you," and it proved effective. She thought that a number of guidance workers and doctors had made a real mistake in emphasizing the fact that the child could not help bed-wetting without at the same time making it plain that they were going to help him to stop it. Among these evacuees the remark was heard over and over again, "The doctor said I cannot help it." Twelve cases of faecal incontinence had to be dealt with in this group. The incontinence seemed to represent unconscious protest as well as repression, and cleared up with a change of foster-mother.

Only two cases of obsession were reported, one of them unconnected with war conditions. In the other case the child began to hide her garments and slippers when undressing, with complete amnesia about them in the morning. Her fantasy was based on an imaginary baby which she thought her mother was producing in her absence. The treatment of psychoneurotics was partly environmental, and directed towards increasing the understanding and tolerance of foster-mothers. Children whose chief strain was due to separation from home seemed to account for most of the psychosomatic and psychoneurotic cases, while those in whom the principal disturbance was due to a physical agency, such as bombing, seemed to react much more in the way of unruly behaviour. Some children who had been bombed were unable to perform ordinary school work. One teacher within a week thus referred twelve children, none of whom on test proved to be mentally defective, but they were unable to concentrate and in particular the auditory perception appeared defective, but they responded to treatment for their anxiety state. With regard to physical ailments she mentioned that London children evacuated to the country showed larger immunity to colds and influenza than the local children, but skin diseases were more prevalent amongst them. The children in wartime could not be shielded from strain, but its effects could be countered, and if wise and sympathetic measures were not taken to relieve it, neurosis and social delinquency might afterwards make its appearance on a large scale.

Dr. W. J. T. KIMBER, who was in the chair, said that among the evacuated children in Hertfordshire he had been struck by the anxiety with regard to the danger threatening their parents who had remained behind. In some vague way many of the children had a feeling of guilt at having left their homes, and this was accompanied by a very real apprehension and persistent anxiety. Dr. EVELYN LUCAS said that the age period during which neurotic manifestations had been regarded as most infrequent—namely, from 7 to 11—was in Miss Alcock's experience of the Huntingdonshire evacuees the period of greatest difficulty. It made one wonder whether these children had done no more than develop an adaptation to their own homes which was due to some extent to specific types of repression, so that the adaptation they had made was not satisfactory in any major upheaval. Mrs. HAMLYN, psychiatric social worker at the Tavistock Clinic, spoke of the condition of unevacuated children in London as she had had occasion to observe them. They appeared to have stood up to the war strain very well. The cases which came to the clinic had nearly all a history of neurotic illness or of other precipitating factors antedating the war. The chief troubles had been enuresis and general delinquency, the latter largely arising from the absence of school discipline in London. On some children the war appeared to have had a good effect, but not on a certain number of adolescents. Dr. R. P. GARROW (M.O.H., Hornsey) concurred in the view that in some respects the evacuated child was worse off than the child left in London, simply because the former was separated from his home environment. He quoted a recent circular from the Ministry of Health, providing for compulsory removal from London of children "suffering or likely to suffer" from mental or physical disorder, and pointed out that mental health suffered little in London but that care in this respect was especially needed in the reception areas.

Nova et Vetera

A WOMAN DOCTOR OF THE SEVENTEENTH CENTURY

Dr. NESBITT BURNS (Shebbear) writes: The following is copied from a tomb in the ancient churchyard of Newton St. Petrock, N. Devon:

Born in Hartland the daughter of Thomas Abbot Gent. first married to Edward Reede of Borabbin Plymouth Gent. by whom she had four children. A widow three years then secondly married unto Richard Potter A.M. now Rector and Patron of this Church to whom by her born four children and lived forty three years. Her life was spent in the industrious charitable and successful practice of medicine chirurgery and midwifery. Dying aged 77 A.D. 1689.

Be unto the blind an Eye
Unto the deaf an Ear
A foot unto the Lame
A public good sleeps here.

In the same churchyard is buried Lempriere of *Classical Dictionary* fame.

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A BIOLOGIST'S PHILOSOPHY

Man, himself the growing point of Nature, has now reached the stage in which he has begun thinking in terms of "values." This in brief is the thesis which Sir Charles Sherrington has developed at length in his Gifford Lectures,[1] to which he has brought a high degree of specialized knowledge combined with a capacity for wide generalization and the outlook of a poet. With characteristic modesty he omits to call the reader's attention to his own important original contributions to the subject. He starts by analysing the viewpoint of Jean Fernel, the leading French physician of the sixteenth century, who was the first to use the word "physiology," which he held to be the necessary introduction to scientific medicine. Before his time the world was full of superstitions masquerading as knowledge and science, the more dangerous because often sincerely held. "Fernel struggling over this quicksand had one rock of foothold—the first-hand observation of fact." Yet the conclusion he reached—that the body worked not by itself but by virtue of some incorporeal tenant entering from without—is one which materialism has rejected. His gradual emancipation from belief in the influence of the stars on this tenant was, however, a great step in freeing the natural world from "the distortions of monstrosity." It is significant that this was due to Fernel's clinical observation that the course of disease did not accord with the patient's horoscope. Nor is it surprising, for "down the ages there has been one class of observer of Nature who has given himself more intimately to its study than have the rest. This is the physician."

The author's sympathy with Fernel is shown throughout his pages, and he tries to translate the older views into modern scientific parlance. He considers that the dance of the electrons within the atom and the subcellular nature of viruses have done much to reduce the gap between the living and the not-living. The story of living matter is one "of a perpetual encroachment by a chemical system of new type on other chemical systems spoken of as lifeless." This dictum is worked out with great skill and detail. The enzyme systems whereby the chemical changes are carried out with apparent ease and at body temperature stand in striking contrast to the violent methods necessary to imitate them in the laboratory, but they differ in degree and not in kind. Gradually we are led up to consider muscular action, simple and conditioned reflexes, and the integration of the nervous system, with a wealth of illustration. Particularly striking are the glowing descriptions of the development of the eye, and of the brain falling asleep and then waking again. Then, after what appears to be an entirely materialistic account, we are confronted by a surprise. Mind is regarded as something quite new: a product of evolution certainly, but outside all our concepts of an energy-system. "The bodily life which can be traced as a continuum back into the geological past is not accompanied continuously by a mental life." For a time in each generation the individual appears to have no demonstrable mental component at all. Recognizable mind seems to have arisen in connexion with the motor act. Where motor integration progressively evolved, so did mind. Yet reflex action and mind seem almost mutually exclusive. The more reflex the action the less does mind accompany it. Mind, "invisible, imperceptible, is inaccessible to sense although to itself directly known."

Thus Sir Charles joins hands with Fernel in regarding mind as something incorporeal, but, unlike him, looks upon it as the product of evolution and not as something imposed from without. Up to the present it is the highest evolutionary product we know. The wisdom of the body can provide for preservation of the self and the species, but the mind can achieve altruistic heights of which the body has no comprehension. In a word, it is the sole thing in the universe which can distinguish between right and wrong and attain to some sense of values such as truth, beauty, and love. Even so, we are but broken lights, for "as we approach Nature's verity we receive its lesson that our advance to knowledge is of asymptotic type, even as continually approaching, so continually without arrival." This philosophy may seem austere to some, but for Sir Charles it is full of satisfaction and hope. And more than this, for it enables him to say, "We dismiss wonder commonly with childhood. Much later, when life's pace has slackened, wonder may return. The mind then may find so much inviting wonder the whole world becomes wonderful." With this cheerful note he does much to inculcate that feeling in others—no easy task in these distressful days.

It is impossible to do full justice in a short space to the close-knit thought of these lectures; to read them is a bracing intellectual exercise, though facilitated by the author's skilful avoidance of technical jargon. We particularly like his substitution of the word "zest" for the psychologist's term "libido," with all its evil connotations, and his revival of Aristotle's phrase "synolon" as a convenient expression for psychosomatic unity. Sir Charles Sherrington has laid all thoughtful minds under a debt for such a sane and balanced exposition of a difficult subject. That his own personality shines through all his pages was only to be expected, and adds to the charm of the book.

[1] *Man on his Nature.* The Gifford Lectures, Edinburgh, 1937–8. By Sir Charles Sherrington, O.M. (Pp. 413. 21s. net.) Cambridge: The University Press. 1940.

HOSPITAL REGIONS

When the British Hospitals Association appointed the Sankey Commission in 1935 its terms of reference were confined to the present and future of voluntary hospitals. Regionalism, which was the main recommendation of the report of 1937, was therefore suggested only for the voluntary hospital system. The Commissioners nevertheless realized that co-operation with local authorities was essential and devoted a chapter of their report to the subject. It was pointed out that some-

thing more than the mere fitful consultation of voluntary hospitals by municipalities imposed by Sec. 182 of the Public Health Act, 1936, was required, and attention was drawn to the advocacy of this policy expressed by the Minister of Health (then Mr. Neville Chamberlain) immediately after the passage of the Local Government Act, 1929. The response to this appeal by local authorities was reluctant and variable. In some areas, such as Manchester and Oxfordshire, rapid progress was made, and it was in the latter area in 1935 that Lord Nuffield interested himself in the problem. Impressed with the success of the Oxfordshire scheme, foreseeing the precarious position with which the voluntary hospitals would be faced after the war, and conscious of the irreversible change in hospital administration which must emanate from the centralized wartime system of the Emergency Hospital Service, Lord Nuffield approached the Minister of Health (Dr. Walter Elliot) in November, 1939, with the proposal to create a Provincial Hospitals Trust to which he would donate one million share units in Morris Motors, Ltd. It was made clear from the beginning that Lord Nuffield had in mind a scheme of regionalization after the manner suggested by the Sankey Commission, but more comprehensive in its scope by incorporating municipal to the same extent as, and on like terms with, the voluntary hospitals. The Minister cordially approved and a Board of Trustees was appointed. The Board is charged with the double function of promoting regional and divisional councils, with financial aid at their inception, and of affording monetary aid to individual hospitals (not exclusively voluntary hospitals) through approved regional or divisional councils. To assist them in the initial stages the Trustees have embodied the Provisional Central Council, established by the British Hospitals Association, in the Provincial Hospitals Regionalization Committee of the Trust. This committee is provisional, and it is contemplated that it will consist mainly of representatives of regional councils as soon as the sixteen or seventeen of these come into being. A Medical Advisory Council has also been appointed under the chairmanship of Sir Farquhar Buzzard, who is sharing with his capable and energetic colleague Alderman W. Hyde, secretary of the Trust, a large part of the burden of setting the work on foot. This medical body, which is representative of several specialisms in medical science, is, we understand, already addressing itself to particular problems of co-operative medical work in wide areas.

The Trust, which does not transgress on the area of the King's Fund for London voluntary hospitals, has called conferences and meetings in the regions outlined by the Sankey Commission, and good progress had been made with the establishment of some of the regional and divisional councils. In other areas, however, the spirit of separatism dies hard. A minor difficulty arises in connexion with certain hospitals for limited communities whose constitutions preclude admission, by way of transfer for relief of a bigger hospital, for instance, of patients who do not belong to that community. The main obstacle, however, is the reluctance of some local authorities to co-operate, perhaps due to a suspicion that this is a deep-laid scheme on the part of voluntary hospitals to tap public financial resources and at the same time to dominate hospial policy and management. This apprehension should be dispelled. It might be worth while to reassure local authorities at once by reconstituting the provisional central committee in such a way as to give them larger representation upon it without the inevitable delay in waiting for the creation of all the regional councils, but, of course, on the understanding that the authorities or associations of authorities represented accept the principle of regionalization and are prepared to promote it.

The timely letter which the present Minister of Health, Mr. Malcolm MacDonald, has sent to Mr. Goodenough[1] reveals the same interest in the subject shown by his predecessors. He approves of the two points on which the Trust is concentrating—namely, on the one hand, building up the future hospital service on existing foundations and finding the right relation between local authorities and voluntary hospitals; and, on the other, promoting a system not constricted by existing local government boundaries. It is to be hoped that hospital authorities will take this letter as a sign that the present time is not inopportune for planning the future—a common excuse for non-cooperation. The Trust, it may be assumed, will appreciate the disinclination of the public in this country to accept any arrangement which involves bureaucratic central administration or the expenditure of public moneys by non-elective bodies. It will also be well advised to limit its operations to the hospital field and to remember that local authorities provide many medical and public health services which are not based on hospitals. On the wider topic of local government the Minister of Health has recently put the matter in these words: "No doubt there must be some changes in the organ of local government in the future. But the principle of self-government in local affairs is an essential part of our democracy; it is, indeed, a foundation of the sound democratic training and practice of a free people. It must be preserved and supported." The problem is to combine public representation with the utilization of disinterested expert knowledge and experience.

AN EPIDEMIC OF BRUCELLOSIS

Those who are proud of their powers of solving detective riddles will find their ingenuity taxed by an occurrence reported by Forest Huddlesdon and Munger[2] from the Michigan State College, East Lansing, Michigan. It appears that from December 10, 1938, to February 10, 1939, there occurred at the college forty-five clinical cases of brucellosis, of which one ended fatally. Of the forty-five patients forty-one were students, one an attendant in the animal house, one a typist, one a plumber, and one a salesman. *Brucella melitensis* was isolated from the blood of the majority, and as this organism has not been recovered from animals in Michigan for some years the source of the infection was undoubtedly a laboratory in the basement of the Institute, where work was being carried out on *Brucella*. All milk used by the students at the college was pasteurized and no evidence that it was infected was obtained. All the students, with two exceptions, had been taking courses of bacteriology during the autumn term, but no *Brucella* cultures had been handed

[1] *British Medical Journal*, 1941, **1**, 94.
[2] *Amer. J. publ. Hlth.*, 1940, **30**, 944.

DOUGLAS HUBBLE AND G. R. OSBORN: ACUTE BRONCHIOLITIS IN CHILDREN

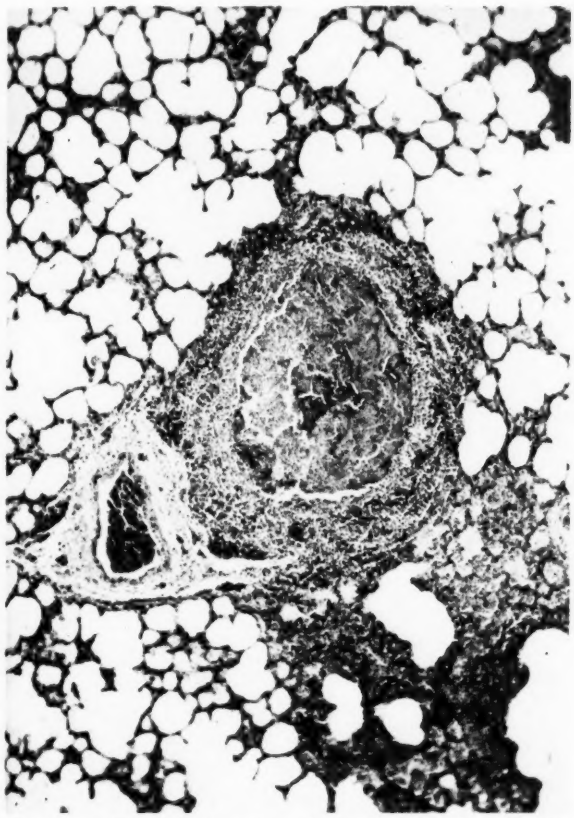


FIG. 1.—A bronchiole 0.7 mm. in diameter. Complete destruction of lining epithelium and plug of almost pure mucus, though there are no glands in the wall. General emphysema and localized alveolar changes well shown.

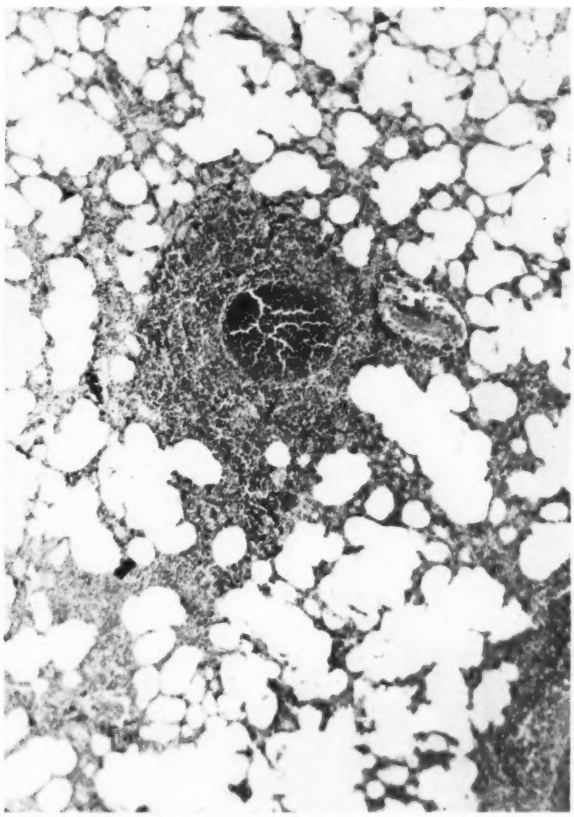


FIG. 2.—Respiratory bronchiole blocked by purulent plug. Peribronchiolitis, interstitial alveolar changes, and general emphysema.

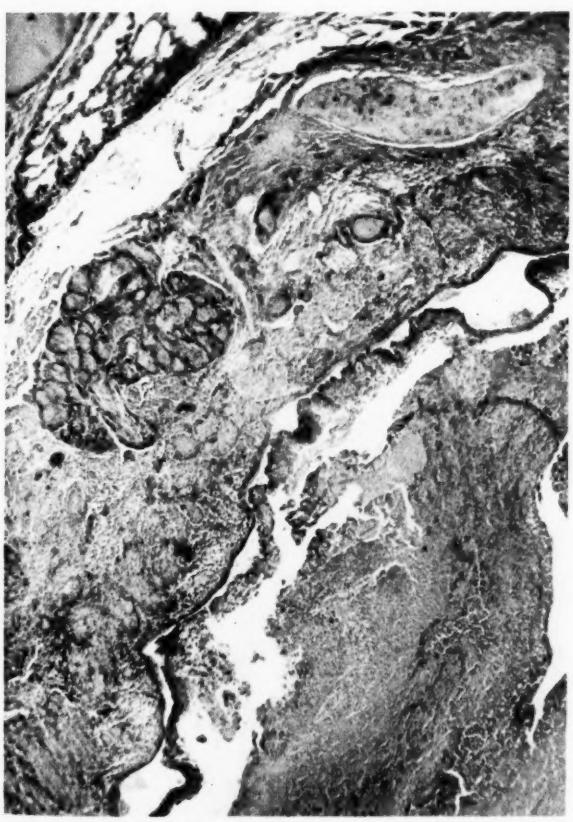


FIG. 3.—Small bronchus blocked by a mucous plug. Damage to lining epithelium and active secretion by mucous glands. Mucicarmine stain.

A. B. SLACK: MULTIPLE FOETAL ABNORMALITIES

Showing herniation of liver, heart, and brain, and cleft palate and bilateral harelip. Placenta adherent to brain.

WILLIAM C. SMITH: UNILATERAL TWIN ECTOPIC PREGNANCY

H. T. LAYCOCK: IRREDUCIBLE INTUSSUSCEPTION IN A BABY, TREATED BY RESECTION

FIG. 1.—Anterior view.

FIG. 2.—Posterior view.

H. T. SIMMONS: PROSTHETIC ULCER OF THE MOUTH

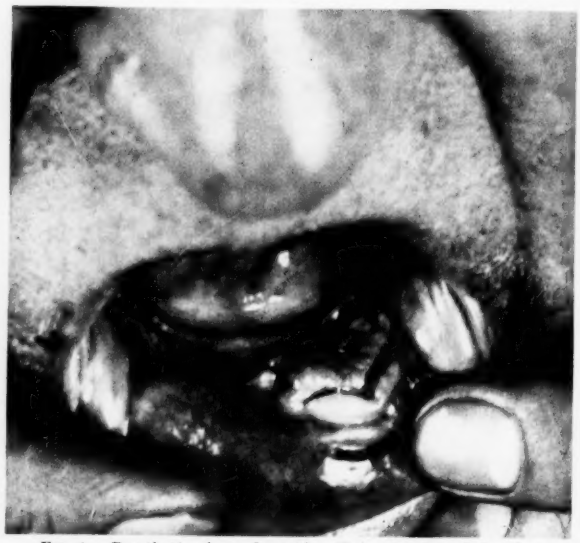


FIG. 1.—Prosthetic ulcer of mouth. Note atrophy of alveolus.

FIG. 2.—Prosthetic ulcer of mouth. With denture *in situ*.

FIG. 3.—Prosthetic ulcer of mouth. Upper lip type.

MICHAEL J. SMYTH: EXPLORATION OF THE COMMON BILE DUCT FOR STONE

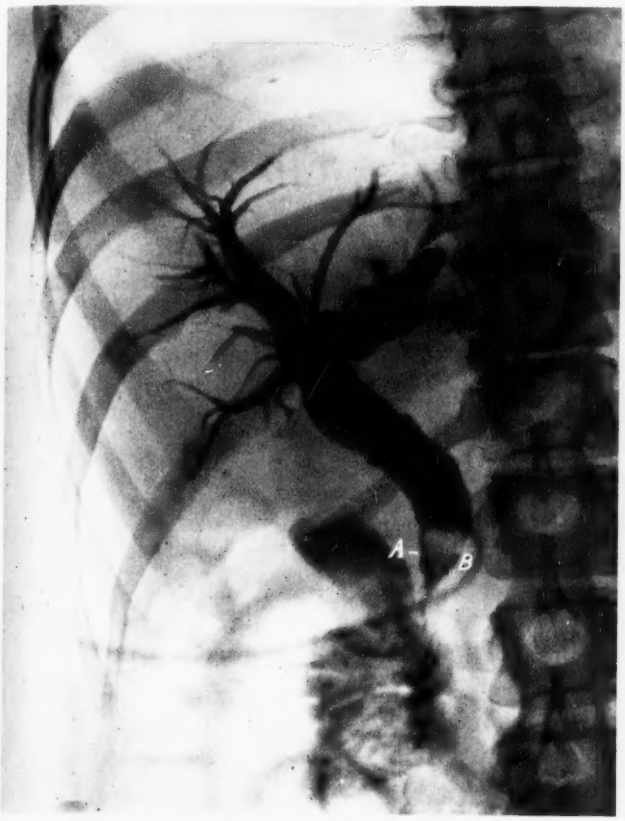


FIG. 1.—Filling defect A–B, lower end of common bile duct. Obstruction incomplete, as opaque medium (per-abrodil) is in duodenum.

FIG. 2.—Per-abrodil in duodenum and common bile duct after removal of five stones and dilatation of sphincter of Oddi. T-tube in common bile duct also shown.

FIG. 3.—Ducts filled with uroselectan after removal of stones from common bile duct.

L. R. BROSTER: FEMINISM

FIG. 1.—Before operation.

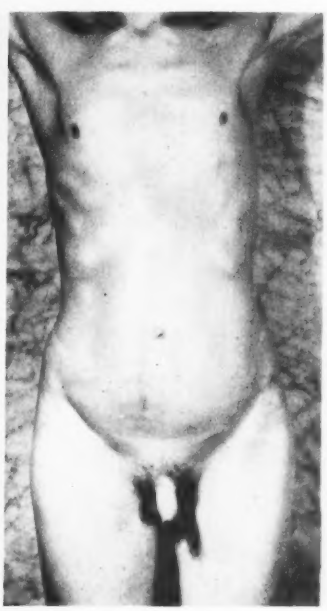


FIG. 2.—Eight months after operation.

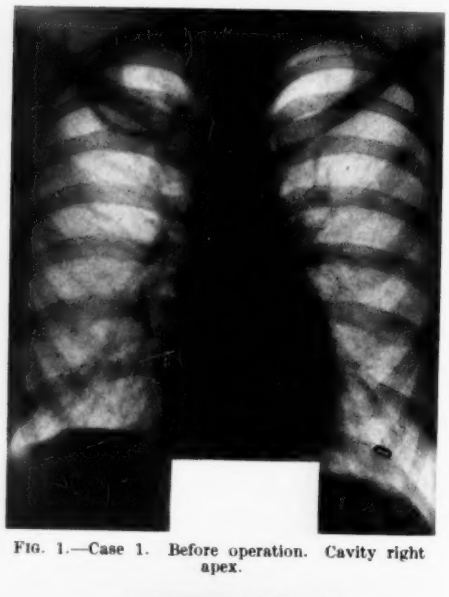


FIG. 1.—Case 1. Before operation. Cavity right apex.

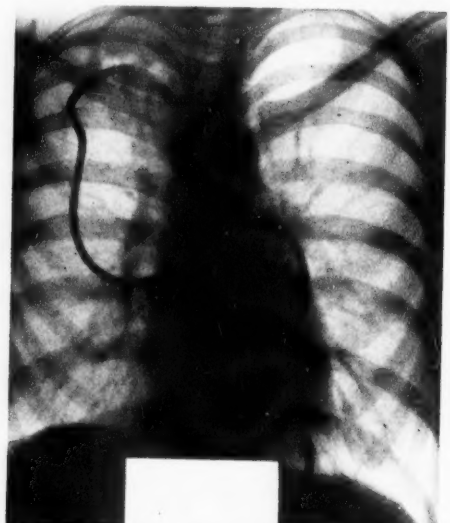


FIG. 2.—Case 1. Showing result of drainage.

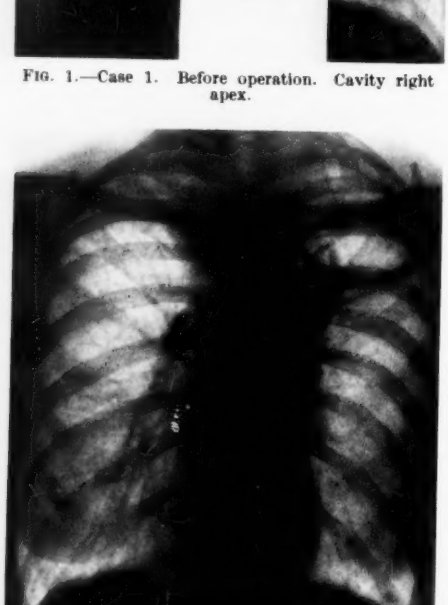


FIG. 3.—Case 2. Before operation. Cavity left upper lobe.

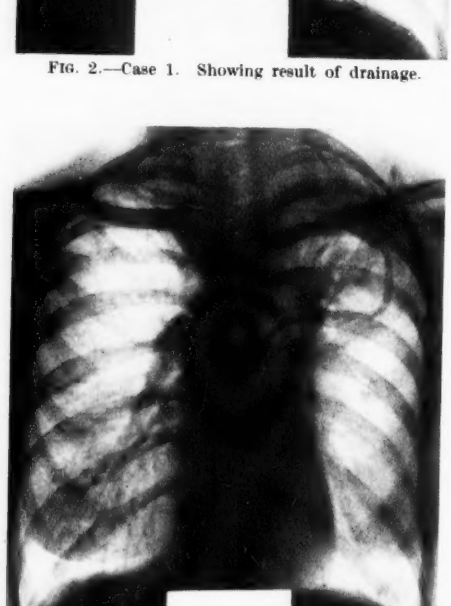


FIG. 4.—Case 2. Showing result of drainage.

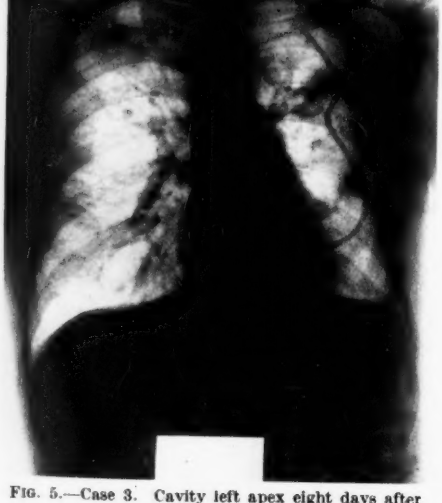


FIG. 5.—Case 3. Cavity left apex eight days after drainage.

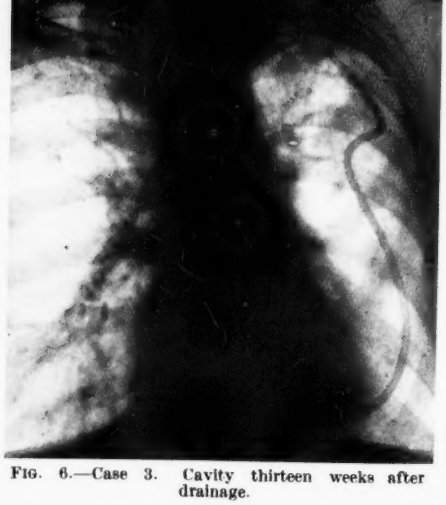


FIG. 6.—Case 3. Cavity thirteen weeks after drainage.

out to them, and the laboratory class-rooms were on the second and third floors of the Institute. One of the infected students who had not taken a course had visited the classrooms on three occasions during the term, but had neither drunk water nor washed his hands. The animal-room attendant worked on the second floor; the plumber had installed an autoclave on the first floor, and had worked in the basement while connecting up the autoclave. The typist worked in an office on the first floor of the building, but paid a daily visit to the *Brucella* laboratory. The salesman called at the typist's office on December 13 just long enough to leave advertising matter, and a second time for a few minutes early in January. Altogether 349 students had taken out courses during the autumn term; an examination of 316 of them showed that in addition to the active cases already mentioned forty-four others had subclinical infections. Since milk could be excluded the possibilities suggested were contamination of the sewage system, of the water supply, or direct contact. No evidence that the sewage system was contaminated could be obtained, and only by exercising very considerable engineering ingenuity was it possible to produce siphonage of water coloured with fluorescein through the cold-water tap at the basement wash-room sink and into the main water line. To obtain back-siphonage it was necessary to shut off the water from the town main, and this had never been done. In addition, the laboratory animals—guinea-pigs and rabbits—which were given water daily from the laboratory supply, were entirely free from *Brucella* infections. The other possibility was direct contact with carriers, and in favour of this was the fact that the majority of both the clinical and subclinical cases were in three laboratory classes; but when subjected to a critical analysis the figures were insufficient to prove any such hypothesis. One possibility on which, however, no evidence is forthcoming is that the ventilating system in the Institute became contaminated and that *Brucella* passed through the various rooms as a result of forced draught. It is known that *Br. melitensis* can live for as long as six weeks in dust. *Brucella* infections in individual laboratory workers have, of course, been known for years, the source of the contamination being usually put down to splashes of infected material getting on to the laboratory bench. No such herd infection of human beings such as has occurred in Michigan has previously been recorded.

RENAL FUNCTION IN ACUTE DIFFUSE NEPHRITIS

Although the pathology of acute diffuse glomerulonephritis has been studied for many years, there is still some doubt about the earliest changes in the glomerular capillaries and the effect these changes have on the glomerular circulation and on filtration through the capsule. Shaw Dunn[1] has recently studied the histology of fifty-eight cases of acute diffuse nephritis collected over many years in which death occurred in an early stage. He concluded that the first recognizable change is a uniform patency of the capillaries in all the glomeruli. The diffuseness of the lesion is striking, every capillary in every tuft being affected. The tufts are enlarged, and this increase in size is soon accentuated by the remarkable increase in cellularity of the tufts whch all pathologsts describe in the acute stage. The intertubular capillaries and the tubules are little altered. Shaw Dunn argues that this uniform patency and dilatation of the glomerular capillaries can account for many of the clinical features of the disease. As is well known, in the normal kidney the glomeruli work in shifts, only a small number being in action at one time. In acute nephritis the circulation in each glomerulus is slowed and filtration is correspondingly less, but as all the glomeruli are now in action together the total filtrate may be as great as under normal conditions, so that non-threshold substances will be adequately removed and the blood urea or non-protein nitrogen may remain normal; but there will be increased opportunities for reabsorption, and the urine excreted will be scanty in quantity, the reabsorbed salt and water causing hydraemia, a rise in blood pressure, and increased transudation of fluid into the tissues. Thus the oliguria, oedema, and possibly the hypertension of acute nephritis can all be explained by the renal lesion, and Shaw Dunn shows how theories attempting to explain the oedema by extrarenal factors are all unsatisfactory. A small leakage of protein from the dilated capillaries will be concentrated in the tubules and explain the often abundant albuminuria. The same author[2] demonstrated a similar uniform patency of glomerular capillaries in subacute nephritis of the nephrotic type, and explained the oedema of that stage on the basis of excessive reabsorption from the tubules, though it is accentuated by the lowered plasma protein content which occurs in these more chronic cases. Platt[3] independently arrived at the same conclusion—that is, that renal oedema in the acute and subacute stages could be explained by the combination of slow filtration and the use of more glomeruli than normal, leading to increased reabsorption and therefore retention of salt and water by the kidney. His arguments were based on the work of Verney and Winton on glomerular pressure. Thus it seems that there is a gradual return to the older and simpler view that in nephritis the renal lesion is sufficient to account for the clinical symptoms without postulating unlikely conditions, such as generalized increase of permeability of capillaries, which have never been shown to exist.

CHANGES IN CALIBRE OF RETINAL VESSELS

Localized constrictions in the retinal arteries are readily observed ophthalmoscopically in cases of severe arterial hypertension. How often these constrictions should be attributed to organic deformity of the vessel wall and how often to vascular spasm is a problem which still presents difficulties. In some cases the arterial wall at the point of constriction appears opaque and thickened, but usually the vessel wall is not visible with the ophthalmoscope. The disappearance of a localized constriction is regarded as evidence that it was spastic in origin, and transitory constrictions are common in essential hypertension and especially in the hypertensive toxaemias of pregnancy. As spasm can be persistent, a continued narrowing of an artery, or part of it, is not conclusive evidence that the narrowing is organic in character. To the limited and confusing pathological observations bearing on this problem Laughlin, Thomas, and Friedenwald[4] have made a useful contribution by a correlated ophthalmoscopic and pathological study on a dog suffering from vascular hypertension induced by the Goldblatt technique (partial occlusion of the renal arteries). The animal showed definite renal hypertension and advanced changes in the retinal arteries. After careful ophthalmoscopic studies with photographs and drawings of the retina had been made, one of the eyes was enucleated and cut into serial sections, and on an extensive analysis of this material the authors conclude that ophthalmoscopically visible arterial constrictions may occur without organic changes in the vessel wall, and that the converse is also true. While the relation between

[1] *J. Path. Bact.*, 1940, **51**, 169.

[2] *J. Path. Bact.*, 1934, **39**, 1.
[3] *British Medical Journal*, 1936, **1**, 987.
[4] *Johns Hopk. Hosp. Bull.*, 1940, **67**, 79.

experimental renal hypertension in dogs and essential hypertension in man has to be elucidated, this study emphasizes the impossibility of determining the character of a given arterial constriction in the retina by ophthalmoscopic inspection alone. Bearing on the question of variations in arterial lumen are the observations by Cusick, Benson, and Boothby[2] on the effect of anoxia and of high concentrations of oxygen on retinal vessels. Previous workers have noted that colour changes in the retina and even variations in the size of the normally present angioscotomata occur with changes in oxygen concentration. The present authors report that in anoxia at simulated altitudes of 18,000 to 21,000 feet there is a dilatation of the vessels varying between 10% and 20%, while with high concentrations of oxygen there is a narrowing in calibre ranging from 10.5% to 37.7%. As a rule the veins show greater changes than the arteries. The authors hold that the changes in the size of angioscotomata observed under these conditions are largely, if not exclusively, due to the alterations in the calibre of the vessels themselves. In view of the intimate relation of the retinal circulation to that of the brain, these observations have an obvious bearing on the physiological problems of flight at high altitudes.

MEASURING VENTILATION

In 1936 an advisory committee of the Royal College of Physicians commented on the paucity of information available on the ventilation of small rooms. In order to remedy the deficiency, Mr. C. G. Warner, Ph.D., measured[3] the rate of ventilation on 312 occasions in thirty-one rooms in a block of older flats, a block of modern flats, three villas, and a modern university building (presumably the London School of Tropical Medicine). His procedure was to liberate a quantity of coal-gas and measure the rate of its disappearance with a katharometer—a device which makes use of the difference in the electrical resistance of identical heated coils exposed to pure air and the room atmosphere respectively. Outside wind-speed is an important factor in ventilation, even in a closed room, and in this experiment a higher wind meant better ventilation even when air gratings were closed. Even when a room is quite closed there is considerable infiltration through the cracks round doors and windows. In the modern flats the windows fitted well but the leakage round the doors varied widely ; when gratings or flues were open this variation made a noticeable difference to the rate of air change. A small amount of window opening greatly increased the natural ventilation. Distempered brick walls, however thick, let much air through, but wallpaper stops an appreciable amount of this, paint more, and hard gypsum plaster —as used in the modern university building—practically all of it. Rooms in old flats admitted more air than did those in new flats when ventilators were closed, and rooms in new flats more than did rooms in the university building with their hard plaster. The rooms in private houses had qualities comparable with those of the rooms in old flats. Temperature difference between inside and outside did not seem to affect the ventilation, but it was not great. The minimum healthy air supply per person is about 600 cu. ft. per hour. The single bedrooms in the modern flats barely admitted this with the ventilators open ; the double bedrooms in the older flats only admitted two-thirds of it with the ventilators closed. Fireplaces proved efficient ventilators, but gas-fire flues did not. When flues were closed in all types of buildings ventilation was much below the admissible minimum. The use of flueless gas heaters in small flueless rooms with ventilators closed should, in Mr. Warner's opinion, be reconsidered.

[2] *Proc. Mayo Clin.*, 1940, **15**, 500.
[3] *J. Hyg.*, Camb., 1940, **40**, 126.

COMPULSORY EVACUATION OF CHILDREN

The Minister of Health has made an Order providing for the compulsory evacuation from the Greater London evacuation areas of children who are found on medical examination to be "suffering in mind or body as a result of hostile attacks or are in such a state of health as to be likely so to suffer if they remain in the area." Local authorities may order a medical examination, which will be carried out by doctors appointed by them, of any child under 14 years who is thought to be suffering in this way, and may direct that the child shall be evacuated within a specified period, which will be not less than seven days. Parents or guardians will be served with a notice of the medical examination, and may, within seven days of the evacuation order, appeal against it to a Court of Summary Jurisdiction. If the child remains in, or returns to, the area the parent or guardian and any person bringing the child back or harbouring it will be guilty of an offence under the Defence Regulations. It will be a defence to such a charge, however, if the parent or guardian can prove that a child was in London without their knowledge or consent. A Regulation has also recently been issued providing for the medical examination of children found in shelters. The Ministry of Health circular announcing these powers states: "While the purpose is to ensure the evacuation of children who are suffering by being kept in London, it is not expected that local authorities will have to go to the length of issuing directions for removal except in a minority of cases." It is hoped that where evacuation is necessary parents or guardians may be persuaded to agree to it.

WAR STRAIN IN EVACUATED CHILDREN

The Ministry of Health is to be congratulated on its foresight in having established in one reception area at least, the county of Huntingdon, a child guidance officer to counter the serious mental strain imposed on children by separation from their home surroundings. It is to be hoped that this experimental service may be expanded and extended to other districts. It is clear from what was said at a recent meeting of the Tavistock Clinic (reported on p. 124) that war strain in children is a matter calling for urgent consideration and that the main source of the condition lies not in the bombed cities but in the reception areas. Wartime circumstances impose on children an abnormal strain—the break-up of normal family life, loss of environmental security, irregularity of education, divided loyalties, and, above all, the fear of impending disaster to their families or to themselves. All these factors contribute to bring about a tension that is at times not far short of breaking point. Mr. Malcolm MacDonald, the Minister of Health, is reported to have said at Bristol early this week that "one of the most remarkable things about the war" is that bombing has not affected the nerves of adults and children to anything like the extent that was feared. It is also remarkable that children who are evacuated appear to be undergoing a greater mental stress than those who remain in bombed areas. This becomes evident in such reactions as enuresis, anxiety, depression, and disorders of behaviour. Many factors probably enter into the causation of increased mental strain among these evacuated children, but the chief one appears to be the break-up of home life and all that that means. Much must obviously depend on the attitude of the foster-parents, and the sympathy and love they are prepared to extend to these additions to their families. The foster-parent, unless she is an exceptional person, will find it difficult to give help to just those children

most in need of it, while the child who has adapted itself to the changed circumstances will more readily become one of a new family. There is in this situation a very real danger that the seeds of neurosis will be sown in an increasing number of children, and apart from the immediate distress and disability arising from this, there is the wider question of what these children will go through later as adolescents and adults. It will be lamentable if the adults of the future will have cause to regret the mental disharmony thrust upon them in a laudable attempt to save their bodies. Evacuation of children from bombed cities is a policy which has the whole-hearted consent of everyone, but there is a danger that the authorities, satisfied with the achievement of one aim—the physical safety of the children—may fail to see the importance of preventing the mental risks that they run. There are a number of child guidance workers in the country at present engaged on a variety of tasks because opportunities for doing the work for which they are trained are not available. There are also many women psychiatrists who could be mobilized to deal with children showing signs of nervous strain in reception areas. Perhaps the most satisfactory solution would be the formation of mobile psychiatric units in counties or regions to which the evacuated children have been sent. It is to be hoped that the Ministry of Health will give a lead to local authorities to undertake one more duty in addition to the many others that have been thrust upon them by the abnormal conditions in which we live.

SYMPATHICOMIMETIC DRUGS IN THE TREATMENT OF PSYCHOSES

There has been much talk about disturbance in the vegetative nervous system in psychiatric patients, but very little of the evidence is exact or well established. Some see in vegetative disturbances merely an effect of the emotional state characteristic of the psychosis in question; others see a manifestation parallel with the mental symptoms of a common underlying disorder of the central nervous system; while others see a clue to the cause of the psychosis. The matter is totally undetermined, and it may be that all three relationships are involved. Much biochemical as well as systematic clinical work remains to be done in this field. Meanwhile sympathicomimetic drugs have to be used empirically, and it is all the more important to have controls. It is a pity that Sir William Gull's classical clinical experiment—the treatment of rheumatic fever with peppermint water—is not more widely remembered. Tietz,[1] in a paper on the action of ergotamine tartrate on aggressively disturbed psychotic patients, records favourable results obtained in a previously tested large series of 150 cases, and examines some of the physical changes accompanying the clinical improvement. He concludes that the alterations in blood pressure and pulse rate, blood sugar, blood calcium and phosphorus are so slight as to exclude the possibility that the ergotamine is effective because of its peripheral action. The clinical results, therefore, if they mean anything, indicate a central effect, and it is stimulating, although wildly speculative, to bring them into line with Bard's work on a "centre" for behaviour patterns of rage in animals with the thalamus cut at a certain level. Does the ergotamine act by picking out a mechanism released or dissociated at the thalamic level, and subduing it? The level of neurological release may have a biochemical counterpart, and this, too, needs elaboration, and points to a set of problems of neurological, biochemical, and ultimately, at a higher level, of psychiatric relationships that has hardly yet been touched. Such studies as Tietz's are suggestive rather than satisfying; but there is nothing like trying, and many of the best-known remedies in medicine, even those recently discovered, have been hit upon by "mere empiricism." The drug should, of course, be given by a route known to be effective by its action in other respects, and in varying dosage; it is also necessary to have controls. It is surprising that this method of pharmacological clinical experiment has not been more used as a means of investigation into the aetiology of the conditions to which the drugs are applied. In the meantime, there are already interesting antinomies to be resolved. Assuming that ergotamine really does quieten aggression, why does adrenaline with a supposedly opposite action control the excitement of catatonia, as some believe? It is possible, of course, in scientific zeal to forget that the first duty of a physician is to relieve suffering. Why, in this series, was the ergotamine discontinued when it had been symptomatically so successful?

[1] *Psychiat. Quart.*, 1940, **14**, 481.

A POLISH MEDICAL SCHOOL IN EDINBURGH

The University of Edinburgh has offered to the Polish Government facilities, which have been cordially accepted, for the establishment in Edinburgh of a Polish School of Medicine. It will be staffed by professors and teachers now serving with the Polish Army in this country, and by professors of the Edinburgh faculty of medicine in such basic subjects as may not be represented among the Polish professors. Discussions are in progress between representatives of the Polish Government and of the University of Edinburgh to settle details of the scheme. The University has gladly undertaken to provide accommodation and material to the utmost of its power, and the city authorities have informally indicated that they will co-operate in the provision of opportunities for clinical instruction. By establishing the nucleus of a Polish faculty of medicine in Edinburgh one of the most important branches of Polish learning—medical research and teaching—will be kept alive, and as little time as possible will be lost after the war in reorganizing active medical services and medical education in Poland.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* are now ready. They will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

We announce with much regret the death at Grayshott, Hindhead, in his ninetieth year, of Emeritus Professor Frank T. Paul, consulting surgeon to the Liverpool Royal Infirmary and formerly dean of the medical faculty of the university.

Sir Henry Head, M.D., F.R.S., who left estate valued at £144,588, bequeathed the greater part of this to the Royal Society, for the advancement in England of the science of medicine.

Reports of Societies

ACTIVE IMMUNIZATION: SOME PRESENT-DAY PROBLEMS

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on January 14 a discussion took place on some present-day problems in active immunization. Sir WILLIAM WILLCOX, who presided, said that in view of the possible pollution of water supplies due to burst mains, the blasting of dust into the bodies of those injured in air raids, and the congregation of large numbers of people in shelters, the civilian population was running considerable disease risks, and the importance of immunization was rendered all the greater.

Dr. H. J. PARISH said that it was necessary to consider which diseases could be dealt with effectively by preventive inoculation, and whether, in the case of diphtheria at least, some compulsory measure might not be necessary and urgent. Now was the time to institute a campaign, without waiting for a major epidemic; anticipation of the event was the keynote of good preventive medicine.

Diphtheria

Immunization against diphtheria was safe and effective when properly carried out, but unfortunately the bulk of the child population had not been reached. In 1939 Sir John Ledingham advocated compulsory measures, and the need was greater to-day, especially for the younger age groups. Could procedure be simplified to facilitate mass immunization? In the present emergency the Schick test might be reserved for selected groups and to control modified methods. Proper spacing of doses of prophylactics and periodic reinoculation would ensure a high level of immunity. It had always been his policy to advocate two doses of alum-precipitated toxoid—A.P.T.—separated by one month's interval, for children. Recently he had advised the medical officer of a large industrial concern with many young employees to use two widely spaced doses of T.A.F., a milder antigen which was usually given in three doses separated by periods of a fortnight; the medical officer was anxious to reduce the number of injections and reactions. Representative groups might be Schick-tested to control the modified method, but, if this was impracticable, criticism was answered when it was remembered that the important consideration was to give some protection to as many persons as possible. But in the desire to reduce the number of injections it was important to beware of so-called one-shot methods. To induce a high titre more than one stimulus was necessary, and the length of interval was more important than the size of dose. It had been shown with guinea-pigs that two doses of 0.1 c.cm. of A.P.T. given at an interval of four weeks produced much higher results than a single dose of 1.0 c.cm. Nasal immunization (for periodic restimulation) had made little headway in this country because it sometimes caused inconvenience from reactions; but it had possibilities, and purified toxoids might again be tried by this route. Indiscriminate swabbing was to be discouraged; high carrier rates were an indication for widespread diphtheria prophylaxis.

Enteric Fever and Tetanus

Damage to water mains and sewers and the improvisation of sanitary arrangements in shelters made the risk of serious epidemics of enteric fever very real. Mass immunization was desirable in many areas, although there was no justification for compulsion except for certain wholesale-food operatives and people who might be exposed to special risks. The Army doses of 0.5 and 1 c.cm. vaccine at an interval of seven to ten days were worked out for young men in good physical condition, and more attention might be paid in civilian practice to physical state and body weight. It was a good plan to give the inoculations late in the afternoon and, if possible, at the week-end. The conventional dose might be further reduced if an effective response could be demonstrated by available tests. After the primary course very small periodic doses (for example, 0.1 c.cm.) were worthy of trial. Vaccine could be given during an epidemic without increasing the chances of infection, as was mentioned by Colonel H. J. Bensted in his recent Harben Lectures.

A year ago much more importance would have been attached to tetanus prophylaxis, but the incidence of tetanus in this war has been negligible. Members of the Land Army, A.R.P. workers, and others might be immunized with toxoid, but mass immunization of the population was not advised. Anti-tetanic serum should be given early to all wounded persons. Two doses of toxoid spaced by six weeks were quite useful, giving good immunity; wider spacing gave better results, but was usually inconvenient administratively. Women gave significantly higher titres than men, and boys up to the age of 4 were twice as susceptible to tetanus as girls, suggesting that females had a greater inborn resistance to this infection (see Marvell and Parish, *British Medical Journal*, December 28, 1940, p. 891). A third dose of 1 c.cm. after a long interval—seven to nine months—often produced a dramatic rise in circulating antitoxin, and counteracted any tendency to waning immunity.

Other Infections

Dr. PARISH considered that this country might have to pay dearly for its failure to make vaccination against small-pox compulsory, and infection by virulent strains from the Continent might tax the resources of the public health services. Whooping-cough prophylaxis might be indicated for the individual; any measure which would reduce the ravages of this infection, even slightly, should not be ignored. The large number of injections usually recommended was a deterrent to mass immunization. Research into the possibility of fewer doses and wider spacing was indicated. For measles, methods of active immunization were not sufficiently advanced to be worthy of serious consideration in the present emergency. Scarlet fever was fairly mild, although active immunization of staffs of hospitals was important. The success of chemotherapy in cerebrospinal meningitis had removed the necessity for consideration of meningococcal vaccine. In dysentery (Shiga) presumably formol toxoid could be made available for human immunization, and research to this end was now in progress. Results obtained with coryza and mixed influenza bacterial vaccines were not very convincing, and experiments were now being made with influenza virus vaccines.

Combined immunization with diphtheria and tetanus toxoids and T.A.B. vaccine had been in vogue for some years in the French Army, but, taking reactions into account, one would hesitate to ask the British Army to submit to it. Diphtheria prophylactics sometimes caused reactions in older subjects, tetanus toxoid rarely, and T.A.B. frequently. It might be useful to combine T.A.F. and tetanus toxoid, also tetanus toxoid and T.A.B. vaccine. T.A.F. plus T.A.B. was probably contraindicated for adults on account of severe reactions. Diphtheria A.P.T. should not be mixed with tetanus toxoid as it might go into solution and become ineffective.

In conclusion, something should be said in warning to those who neglected the usual precautions of sterilization of syringes and needles and maintained they never had a case of sepsis. Many sore arms ascribed to the prophylactic were really due to bacterial infection. Published and private reports demonstrated the grave risk incurred if the instruments were not sterilized by heat. Far too many practitioners relied on alcohol as a disinfectant, although its unreliability was well known. One set of syringes and needles should be reserved solely for inoculations, and another complete set for the withdrawal of pathological fluids. A fresh sterile needle should be used for each injection. An intensive campaign was no excuse for slip-shod methods.

Combined Immunization

Dr. J. H. MACLEAN said that the diseases which he regarded as of primary importance from the point of view of active immunization were enteric fever, diphtheria, whooping-cough, influenza, and tetanus. None of these was a disease against which there was active chemotherapy, but there were efficient prophylactic agents for all of them. In considering combined immunization against various infections, it must be borne in mind that this measure was for the convenience of the practitioner and the patient, and the mixtures should be constructed to suit the particular group of population which it was intended

to immunize. If large-scale immunization of the general population was to be carried out, then for reasons of urgency or for convenience it must be determined what combinations of antigens were effective, so that the number of injections was reduced to a minimum—for example, how far was it possible to combine (*a*) various bacterial vaccines, (*b*) bacterial vaccines and toxoids, and (*c*) bacterial vaccines and virus vaccines so as to obtain the best response to each antigen? The best spacing of doses had also to be considered, as well as the great variation in individual response. Was this combination of antigens sound immunology, and how far should it be extended? It had been found that healthy people did respond to mixtures. Inoculations of vaccine containing thirty different types of pneumococci had been given, and although thirty types were not tested, those which were showed an adequate response. Ramon had been successful in human immunization with combined diphtheria and tetanus toxoids. Extension of this mixing of toxoids may throw too much strain on the immunity mechanism; work was proceeding on this matter, and information would soon be forthcoming. In combining a bacterial vaccine with a toxoid, not only did the mixture not impair the response to each type of antigen but there was definite proof that in some cases the combination would enhance the response to the toxoid. T.A.B. plus tetanus toxoid was suitable for an adult civil or military population. Maclean and Holt had shown that the response to tetanus toxoid in man was five times better if combined with T.A.B. vaccine than when the toxoid was used alone, and Culver Evans and Maclean had obtained full responses in children immunized with a combination of whooping-cough vaccine and diphtheria A.P.T. Very little had been done on the combination of a bacterial vaccine and a virus vaccine, but if an emergency arose and a decision had to be made to immunize against an epidemic of influenza he thought it would be reasonable to combine a vaccine of the influenza virus with a vaccine made from the catarrhal organisms which might be definitely associated with the epidemic.

Active immunization in the presence of an epidemic had been claimed by those who had had to deal with large epidemics abroad to have cut short the epidemic. The negative phase was a definite bogy, but an adjustment of the usual prophylactic dose might be required, the practice generally being to give half the dose, which worked very well. Slowly spreading epidemics might thus be successfully combated. The significance of the individual responses did not seem to be appreciated. In a recent experiment 10% of persons were found to be poor reactors, but there was not sufficient experience to convert the individual response into terms of susceptibility to infection. It was a very important public health question whether poor responders should be given a special course of immunization. It was known that they were greatly benefited by increasing intervals between doses and by being given a mixture of toxoid and vaccine, and in children it might happen that they should be given another course in which the toxoid would be incorporated with an irritating vaccine such as T.A.B. or whooping-cough vaccine.

Questions and Discussion

Dr. R. A. O'BRIEN mentioned the real problem of the bad responder, saying that if he did not respond to one vaccine he would probably fail to do so to another. He had found failure to respond to diphtheria prophylactics in children who were members of the same family; some hereditary factor might be concerned. It was interesting that Dr. Maclean regarded the negative phase in active immunization as a definite bogy which could be disregarded. Dr. BROWN spoke of the part played by the polymorphonuclear cells in combating tissue infections. Prof. A. FLEMING remarked that it was easier for a bacteriologist to show how to protect against disease than for the public to be convinced that they should be protected. To the general public a needle prick was a serious business, and the inoculated person attributed to the injection all his other troubles for the next month. On the question of sterilization of syringes Dr. Parish had not mentioned the boiling-oil method, which was most convenient economically and practically. It had been used at St. Mary's for thirty years. Dr. C. H. ANDREWES, in speaking of immunization against influenza, regarding it as a mixed infection of virus and bacteria, suggested that it was a mistake to mix two vaccines both unknown, because this would delay the acquisition of knowledge as to whether either or both were any good. Dr. H. SCHÜTZE said that the civil population, unlike the Army, was not immunized against enteric fever. He thought that civil defence workers and those who dealt with damaged water mains should be protected. Dr. W. M. CROFTON spoke on the need for great care in the sterilization of syringes and needles. Major A. E. FRANCIS said that prophylactic doses in an epidemic, if supplies were limited, might be quite small. It was better to give the maximum number of people some protection than to give a few individuals normal doses. Surgeon Commander RAINSFORD asked as to the keeping qualities of a mixture of T.A.B. and toxoid. Dr. NORAH SCHUSTER said that it was her practice to give massive doses of calcium lactate before injecting T.A.B.

Dr. PARISH, in reply, said that some experiments had been carried out with nasal immunization against diphtheria in which purified toxoid had been incorporated with an ointment base; some adults suffered no inconvenience and responded well, but others preferred any number of injections to a nasal administration, and showed no increase in circulating antitoxin. He thought further research was indicated. He had experimented with the boiling-oil method of sterilization of syringes intentionally infected with sporing cultures, and had found there was growth in practically every instance after its use. The use of separate syringes and needles for inoculations and for the withdrawal of pathological fluids was recommended, in which case boiling the former immediately before injections were made would be quite satisfactory. Autoclaving was the ideal method, but was not always practicable. Dr. MACLEAN, also speaking in reply, said that in respiratory infections something could be done by the use of a bacterial vaccine. In the presence of an epidemic the use of smaller doses if necessary was certainly to be recommended. With regard to the keeping qualities of T.A.B. and tetanus toxoid, he had been using these mixtures out of the same bottles for some months, and they were still quite satisfactory. So far as calcium lactate was concerned, he had discontinued its use when the issue of rejuvenated typhoid vaccine was made; it was preferable to inject a small preliminary dose of vaccine to lessen the local and general reaction.

Correspondence

Medical Planning Commission

SIR,—In view of the increasing and undisputed importance of psychotherapy in medicine, may I suggest that the Institute of Psycho-Analysis and the Tavistock Clinic be invited to send delegates to the B.M.A. Medical Planning Commission?

Since the planning of medicine is only one facet of the nation's post-war reconstruction, it might be considered prudent to broaden the character of the Commission by including an economist, an industrialist, a banker, a trade union leader, and an architect. James Barrie would have included a romanticist, and perhaps even a patient.—I am, etc.,

London, W.1, Jan. 18. S. L. SIMPSON.

SIR,—On reading through the list of names of the Medical Planning Commission I, for one, was surprised at its composition, "for the purpose of reconstruction and reorganization in the field of medicine in the great war era." I made a rough division, and find there are twenty-nine specialists, twenty-three town members, and one county member. I have no objection to any of these names, but there are many serious problems in the country which require serious consideration, and country practice is not the same as a town one. How many of the specialists have a working knowledge of country practice and institutions?

It is surprising that the B.M.A. Executive Committee had not considered this in their selection. I see they have the power to co-opt extra members. It is to be hoped they will give consideration to the country practitioners' representation. No scheme will be complete without serious consideration of the many problems in our country districts.—I am, etc.,

Bicester, Oxon., Jan. 8. J. HOLMES.

SIR,—Dr. Alfred Cox writes in his congratulatory letter (January 11, p. 61) that he is particularly interested in your announcement that the "vision and aspirations of the younger men and women will not be overlooked," a view which is shared by many of us older ones. Dr. Cox states also that "there is always a risk that the minds of the older men, particularly when habitually immersed in medical politics, will become polarized. It is not easy [Dr. Cox says] for such men to get away from the ideas and technique of our 'proposals for a National Medical Service.' But it must be done." Such a statement from a past secretary of the British Medical Association, with long experience of medical politics, carries great weight and must be regarded as a serious warning to us all.

With this in view may we be informed (1) of the average ages of those who compose the Commission; (2) whether such youthful bodies as the "Socialist Medical Association," the "United Hospitals Socialist Association," and others will be invited to express their formal views of the proposed organization of the medical service for the nation (as they have given this their earnest consideration in the past); and (3) whether all allied and auxiliary medical services that exist, together with the laity concerned, will be consulted by the Commission in its work?—I am, etc.,

Woking, Jan. 13. F. G. BUSHNELL.

SIR,—The Medical Planning Commission has been appointed. This is a pity, because having more or less elected itself and having become "first in the field" it is unlikely to be supplanted by any other more representative organization. The present Commission savours too much of London and the big cities, too much of highly placed medical legislators and more or less whole-time administrators, and far too little of men who actually do the medical work of the country and by their experience realize the failings of medical organizations in their own areas as they exist to-day.

One of the first and most important duties of a Medical Planning Commission is to unite the three separate bodies which are drifting further and further apart—general practice, hospital services, and public health administration. No medical planning can ever be really efficient until these bodies are organized to work together, and to work together amicably and in a way complementary to one another.

The real pity about the appointment of this Commission is that machinery exists throughout the country to form a body thoroughly representative of the various kinds of work of all areas, including both members and non-members of the B.M.A. or any other medical organization. I refer to the Local Medical War Committees. These committees represent every kind of medical work of relative local importance, and, what is more important, they are in touch with all the present-day problems. Surely a body could have been elected from these committees representative of the services already mentioned, and to this body one or two medical autocrats and bureaucrats could have been added—not for use, but to give colour—a matter which would weigh far more with those Government Departments with which they would at any time have to negotiate.—I am, etc.,

Reading, Jan. 17. STANLEY C. ALCOCK.

SIR,—In October of last year a Local Medical and Panel Committee had a short discussion on some literature issued by the Medical Practitioners Union, and as a result drafted a letter to the B.M.A. asking for information and guidance. A reply came back that further information would be had in about a fortnight, but nothing further was heard until the publication of the composition of the Commission. What is the composition of this Commission? In the list of some sixty-eight names there are those of many consultants, members of the Council of the B.M.A., and representatives of the various learned bodies. But what of the poor general practitioners, who must number about 80% of the medical men in harness? These are the men who will be expected to work any scheme, and yet I can only pick out six or eight names of men who appear to belong to this class, and some of these are rather doubtful.

In his letter (January 11, p. 61) Dr. Alfred Cox appears to have some misgiving that the Commission will fail in its object, or, as he puts it, become "polarized." I am quite sure that to many of us Dr. Cox's fear is a certainty, if the composition of the Commission remains as at present. One can visualize many lengthy sessions of brilliant speeches by men whose knowledge of the life and work of the average G.P. is in inverse ratio to their knowledge of medicine or surgery, and who are inclined to think in terms of guineas rather than shillings. Then would follow a wonderful scheme, which the Government of the time would probably turn down at once as unworkable, and after that, silence.

I notice that the Ministry is to be asked to appoint "observers." What would they do? Where are your financial experts? After all, any scheme of this nature depends upon finance. Surely a Commission of this kind should consist of a *limited* number of G.P.s, rural as well as urban, and representatives of all the various branches of medicine and surgery. What about the men who for the last twenty-seven years have run the National Health Insurance Act and made it the success that it is to-day? If a State service comes it will be based upon and include the present panel system. Good representation of this class of men would ensure the elimination of the worst features of that scheme.

If this letter reads as a reflection on the actions of the B.M.A., it must be remembered that to many of us the only positive action was the voluntary giving up of a portion of our panel capitation fee at the time of the slump, as a "patriotic gesture."—I am, etc.,

Worthing, Jan. 16. H. DUNDAS MCCALL.

Medicine in a Changing World

SIR,—The article by Sir John Orr (January 18, p. 73) has opened up problems of the first importance not only to medicine but also to the whole sociological and economic life of the country, and I should like, with great respect, to express my disagreement with the comments in your leading article (p. 91).

You do not deny Sir John's affirmations that "the medical profession contains within it experts on every subject that affects human welfare" and that "it is the only organized group of men competent to make a statement on human needs," but you criticize and emasculate them, deprecate what you call "contamination" by political partisanship and economic theorizing, and advise that the cobbler should stick to his last.

Clearly and self-evidently, if these propositions are true, it is not only expedient for the profession to take an active part in political and economic problems but it is its bounden duty to do so. Calling this political partisanship is merely evading a vital question. Politics has become now literally a matter of life and death to the individual, and it is certainly time that it was taken out of the hands of party organizers and placed on a scientific basis, to be studied and organized strictly by the scientific method. We don't speak of partisanship in considering medical and other scientific questions. Opinions on these subjects are regulated by the evidence for and against. Economics and politics can be no exception and should be in the hands of people trained to deal with problems on scientific lines.—I am, etc.,

London, W.1, Jan. 18. FREDERICK DILLON.

SIR,—The stately caveat administered in the third leader of your issue of January 18 (p. 91) will, it is hoped, come as a shock and a disappointment to many of your readers.

Sir John Boyd Orr suggests (p. 73) that the medical profession should make, as its contribution towards post-war reconstruction, an authoritative statement upon the reorganization of our social and economic system necessary to satisfy the health needs of the whole population. Your leader writer advises, on the contrary, that in a changing world "the cobbler must stick to his last" and that the profession should enunciate desiderata without concerning itself with their realization:

> "They murmured as they took their fees,
> There is no cure for this disease."

To justify this aloofness an extravagant compliment is paid to political movements. We are told that if a scientific contribution of the kind suggested were made we, as a profession, should become politically allied. I think this is to misread the suggestion. Political movements provide marching songs, and sometimes lullabies, but a determined public opinion and expert

advice are necessary to the building of roads. Who should advise as to how the road to national health should be built if not the medical profession?

For more than a quarter of a century the medical services of the country have been left in a state of arrested development largely because no satisfactory system has been evolved for payment for the medical care of the dependants of insured persons. Are we to wait through another quarter of a century for accepted standards regarding nutrition, housing, mental development, and fun and games to become actualities while others fail to discover how they are to be paid for?

Whether we like it or not, a point has been reached at which medicine must take into consideration and bend to its will the science of economics as it once, though not too willingly at first, absorbed and made triumphant use of the discoveries of Pasteur.

Please, please, Mr. Editor, take your head out of the sand, in a changing world, and give us another leading article.—I am, etc.,

Potters Bar, Jan. 19. MAITLAND RADFORD.

*** But why walk with one's head in the clouds?—ED., *B.M.J.*

Treatment of Carcinoma of the Cervix

SIR,—Sir Alfred Webb-Johnson, when discussing carcinoma of the cervix in his recent Bradshaw Lecture, tabulates (January 11, p. 40) certain published figures of mine giving the results I had attained by Wertheim's operation up to 1928. I have recorded such results from time to time over a period of many years, and have always divided my cases into two groups: (*a*) those in which the regional glands were free of carcinoma; and (*b*) those in which they were carcinomatous. This is a classification based on facts ascertained in the operating theatre and histological facts in the laboratory, whereas the radiological classification of the cases into four stages is merely founded on clinical opinion and has a wide margin of error.

I have repeatedly pointed out that no true comparison can be made between cases whose grouping is so differently arrived at. The radiological classification is founded solely on the extent to which, in the opinion of the examiner, the primary growth in the cervix has spread, but there exists no fixed relation between this and the state of the regional glands, for they may be carcinomatous when the cervical growth is still very small, and, conversely, may be free when the cervical growth is most extensive.

Judge, then, my dismay when I see 212 operation cases of mine in which the glands were not involved lumped together by Sir Alfred into Stage I of the radiological classification (a stage restricted to very early growths entirely within the cervix), and my cure rate set down as applying to that stage alone, whereas in fact the greater number of the cases would, on the state of the cervix, have been radiologically classified as belonging to Stage III.

My five-year cure rate for all the cases I have operated on stands at present between 40 and 43%, according to whether cases lost sight of or dying of other disease are or are not included in the calculation. This result has been pretty constant since I began to do the operation, varying a little one side or other of 40%, from year to year, as luck was for or against. It might be surmised that the lowered operative mortality would increase the percentage of cures, but it does so only slightly, because the saving in this respect has chiefly affected the more advanced cases, which, if the patients survive the operation, add to the number of recurrences later on.

Moreover, my results as regards cure are about the average, being much the same as those recorded by other surgeons who have published theirs, and, indeed, such similarity is to be expected seeing that the method of cure (the operation) does not materially differ in different expert hands.

It is ill arguing from exceptions, and the main radiological figures which Sir Alfred quotes are incomparably better than the average results of radiation therapy as carried out by other institutions in this country under the direction of experts of established reputation, of which that at the Middlesex Hospital, in the charge of my most clever and conscientious colleague Mr. Windeyer, may be taken as an example.

Whether it is best to treat a case of carcinoma of the cervix by operation or by radiation (presuming the proper performance of either is at command) is a question whose answer needs much more knowledge and consideration than Sir Alfred has given to it.—I am, etc.,

Hereford, Jan. 13. VICTOR BONNEY.

Pride and Prejudice in the Treatment of Cancer

SIR,—Sir Alfred Webb-Johnson in his Bradshaw Lecture calls attention to the urgent need for radiotherapists to implement the provisions of the Cancer Act. Having been for many years examiner and lecturer for the Cambridge D.M.R.E. I have long foreseen that this difficulty would arise. During the four years ending 1938 the total intake of medical students in this country was about 10,000. During the same period the number who took the Cambridge diploma was 87. Of these, 29 were from over-seas, leaving 58—a yearly average of 14.5—from the British Isles. To these must be added the still smaller number who have taken the diplomas of other bodies, but from the total must be deducted the great majority who prefer *x*-ray diagnosis to therapy. These figures show that under present conditions there is not the smallest hope of providing the "great army of workers" which Sir Alfred considers essential.

There being no lack of facilities for instruction, the cause of this deplorable state of affairs clearly lies in the unattractiveness of conditions and prospects. The following, based on discussion with a number of experienced radiologists, appear to be the main reasons.

1. No one will deny that the advent of radiology in its twofold purpose has been one of the few great revolutions in medicine. In spite of this radiology has acquired in this country no academic status. It has no College of its own. Of university chairs there are none; of lectureships only one or two. In this respect we are lamentably behind all other great countries.

2. Many of the patients whom the radiotherapist sees come to him too late, either through their own neglect or through the failure of operative measures. His work lies largely among those whom the surgeon has discarded. However interesting it may be, it must have a depressing effect on those who practise it unless they are possessed of a sanguine temperament.

3. It is found that patients of moderate means can often afford fees for a surgical operation, but afterwards, when radiotherapy is found necessary, their means are exhausted and they become hospital patients.

4. Sir Alfred's liberal views on the proper status of the radiotherapist are not by any means universally shared. The attitude which is all too common was typified by a recent speaker at the Royal Society of Medicine who described radiotherapy as the "handmaiden of surgery"! It is the general experience that when a surgeon sees a patient and finds that he cannot operate, or that an operation which he has previously performed has been unsuccessful, he advises the patient to have *x*-ray treatment. When the patient reaches the radiotherapist the latter's course of action has virtually been decided for him. He may know better than the surgeon that the patient has reached the stage when *x*-ray therapy can do him more harm than good. But the surgeon's opinion has impressed itself so strongly upon the patient and his relations that it is very difficult for the radiotherapist to express a contrary opinion without running the risk of being thought disobliging. Late cases are frequently referred for *x*-ray treatment "so that the patient may feel that something is being done." Is the radiotherapist to give treatment against his judgment, or is he to deceive the patient by putting him under the tube without switching the current on? Why should not the surgeon perform a dummy operation? A course of *x*-ray therapy is the equivalent of a surgical operation. It has a definite curative or palliative object, and should not be carried out for any other purpose. As I have said elsewhere, the *x*-ray department is still regarded as the ante-room to the post-mortem room.

The greatest need at the moment is a fundamental change in attitude towards radiotherapy. Sir Alfred's dream will not materialize until pride and prejudice give place to sense and sensibility.—I am, etc.,

Cambridge, Jan. 17. FF. ROBERTS.

Effort Syndrome

SIR,—The two cases quoted by Dr. Middlemiss (*Journal*, December 28, p. 915) as examples of effort syndrome read so like cases of masked thyrotoxicosis that, as one who, having operated upon a number of such cases, has been impressed by the gratifying results of partial thyroidectomy, I feel constrained to raise the possibility. The "full" thyroid, tachycardia, and tremors of Case I, constituting three of the cardinal signs of Graves's disease, and the shortness of breath, tachycardia, and attacks of palpitation which followed an acute emotional disturbance (sudden death) in Case II are at least suggestive. These remarks are manifestly open to the criticism that I have not seen the cases quoted, but my object in making them is to draw attention to the importance of not overlooking masked thyrotoxicosis.

For determining the presence of this condition I have found the following three lines of investigation valuable: (1) Is the condition better in cold weather than in hot, and has the patient a good appetite in spite of the disturbances complained of? (2) What is the reaction to the adrenaline test? (Details of this have been previously and elsewhere recorded.) (3) What is the effect of small doses of iodine given over some weeks?

If the answers to these questions indicate a thyroid origin for the symptoms a good result can be predicted from thyroidectomy, and such patients may not only be rendered fit for general service but protected from a long period of invalidism.—I am, etc.,

Dec. 30. LAMBERT ROGERS.

Treatment of Bronchopneumonia in Infants

SIR,—Dr. A. Morton Gill's article (December 28, p. 900) was both interesting and of immediate clinical importance at a time of the year when an increasing number of cases of respiratory tract infection are occurring. I would, however, like to pass some comment on it, based on my personal hospital experience, because I feel that an increase in the dosage of sulphapyridine above the doses recommended by Dr. Morton Gill will result in a reduced mortality rate.

From November, 1938, to May, 1939, I collected a series of 160 consecutive cases of pneumonia to study the effect of treatment with sulphapyridine, and case papers for previous years were most carefully scrutinized to obtain comparable figures for cases treated without chemotherapy. From the figures then obtained I have now taken the cases of bronchopneumonia under the age of 1 year to compare them with the results published in your article.

Series	Cases	Deaths	Mortality
Dr. Morton Gill	11	4	36%
1937–8 (before chemotherapy) ..	17	8	47%
1938–9..	18	3	17%

My two series of cases are quite unselected. They include all patients with bronchopneumonia under 1 year of age that came for treatment from November to May in the years under discussion. In my cases from 1938 to 1939 I believe the relatively low mortality to be due to adequate chemotherapy. I did not use oxygen tents as a routine, and indeed I am of the opinion that the omission of oxygen with an easy mind is one of the advantages of treating pneumonia with sulphapyridine. The general nursing and feeding of my cases were much the same as Dr. Morton Gill's. The one essential difference was in the use of very much larger doses of sulphapyridine. The following four cases illustrate the doses employed.

(1) An infant, 19 days old, admitted on the third day of illness, had 1/2 gramme four-hourly for three doses, then 1/4 gramme six-hourly for three days.

(2) An infant 4 months old was given 1/2 gramme four-hourly for four doses, and 1/2 gramme eight-hourly for three days.

(3) An infant 3 months old, desperately ill on admission, was given 1 gramme, then 1/2 gramme four-hourly for four doses and 1/2 gramme eight-hourly for three days.

(4) An infant 9 months old had 1/2 gramme four-hourly for six doses and eight-hourly for three days. This infant was readmitted six weeks later with lobar pneumonia, and recovered after receiving 1 gramme on admission, 1/2 gramme four-hourly for six doses, and eight-hourly for three days.

It may well be that if the fatal cases in Dr. Morton Gill's series had received doses of this order for the first day of therapy the outcome would have been satisfactory. I believe that it is essential to give bigger doses early, and that it is then permissible to reduce both the dose and the frequency of administration. Thus Case 4 quoted above had 3 grammes in the first twenty-four hours, and a total of 7½ grammes, whereas Dr. Morton Gill's Case 7 had only 1¾ grammes in the first day. It seems to me certain that it is useless to endeavour to make up the total later in the course of treatment. This is the generally recorded idea in most chemotherapy, and it is well known that there is a risk of producing a drug-resistant infection by giving inadequate quantities at the start of treatment. I have never had cause to regret the administration of large doses to the smallest infants, and have given 1-gramme doses to an infant of 1 year with no ill effect on many occasions.

In treating lobar pneumonia in adults I have adopted the same type of changing dose. Since November, 1938, my adult cases have received an initial dose of 2 grammes, then 1 gramme four-hourly for four doses, and eight-hourly for three days. In the first eighty-four cases between the ages of 5 and 70 it was necessary to modify this course of treatment in ten cases only, and there were five fatal cases. It would be of considerable value to learn what doses other clinicians are using, both for infants and for adults.

I must thank the Medical Officer of Health for London for permission to publish these figures. He is in no way responsible for the views expressed in this letter.—I am, etc.,

London, S.E.10, Jan. 6. ALEXANDER KAHAN.

Malaria among Merchant Seamen

SIR,—In an interesting clinical memorandum (January 4, p. 14) on a case of malignant tertian malaria Drs. J. Fawcitt and A. H. Walters mention that there have recently been a number of deaths from this disease in several dockside hospitals. As there is reason to believe that in the immediate future there will be an increasing number of merchant seamen returning to this country at short intervals after calling at a malaria-infested port, the necessity for being on the look-out for this disease should be borne in mind by those doctors who may be called upon to treat merchant seamen in their homes and elsewhere.

This was brought home to me by a recent experience. A few weeks ago I was asked to go out to a troopship and examine some sick members of the crew. In the ship's hospital I found ten seamen who had been ill for about a week. Their illness had been diagnosed as gastric influenza. One man had died that day, and three were dangerously ill. All had more or less high temperatures, and vomiting was present in nearly every case. I found that the ship had called at a certain African port on the way home, and this suggested that malaria might be the right diagnosis in at least some of the cases. Owing to a shortage of the necessary materials I was unable to examine the blood of all the sick cases, but I was able to make films of the three worst ones, and had no difficulty in finding the rings of malignant tertian malaria. These three were immediately given injections of quinine. One of them died about twelve hours later without showing any response. A sample of his blood after death still showed a very heavy infection with rings. The two others remained dangerously ill for about twenty-four hours after receiving three injections each, then began to improve rapidly. The change in their condition when I visited them a few days later was most impressive. The rest of the patients were given quinine by the mouth and all made an uneventful recovery.

The danger of missing the diagnosis is increased when a seaman arrives in a home port feeling ill but unwilling to give up his home leave. He may then consult a doctor who is unaware that he is a seaman or has been recently in a malaria-infested port.—I am, etc.,

Paisley, Jan. 12. A. GARDNER.

Sterilization of Dressings and Post-operative Tetanus

SIR,—The recent paper by Lieut.-Colonel S. N. Hayes on imperfect sterilization as a probable cause of post-operative tetanus (December 14,, 1940, p. 825) raises a point of great interest and importance, especially at the present time.

A number of years ago a careful study of the conditions underlying efficient sterilization was made at the Jessop Hospital for Women, Sheffield, and an outline of the results obtained—which were in close agreement with those of Colonel Hayes—was published at the time (*British Medical Journal*, June 20, 1925). The outstanding importance of a really loose packing of dressings in the drums used as containers was clearly demonstrated there. The technique of sterilization adopted in this hospital since that time has been based on the results of these studies, and, as the details have been developed by further trials in the last few years, it may be of interest to state the precautions that are now adopted here with a sterilizing plant using steam from the hospital boilers.

1. The sterilizer is fitted with an automatic pressure and vacuum recorder which produces a written chart of the operations. These charts provide a check on the handling of the sterilizing plant and are kept as records.

2. At the beginning of the sterilizing process air is evacuated so far as possible and steam is then admitted to full (20 lb). pressure for two or three minutes. Steam is then shut off and the sterilizer is re-evacuated, after which steam is again admitted and a pressure of 20 lb. maintained for twenty minutes or more. The object of the double evacuation is to replace the air contained in the dressings by steam more effectively. Numerous trials have shown that complete removal of air is not obtained by the first admission of steam, and this re-evacuation followed by the readmission of steam at the same pressure for twenty minutes or more has shown that the penetration of the steam is much enhanced by this manœuvre.

3. However carefully the sterilizing plant is operated, defective sterilization may still ensue if the goods have been packed too tightly in the drums or if the holes in the drums have not been opened. An internal check is therefore always employed by including in the centre of each drum a control tube (the Browne sterilizer control tube—a development of the control described in the 1925 studies) which changes colour as sterilization proceeds. The timing of the colour change has been adjusted to leave a wide margin over the thermal death points of tetanus spores as determined in the studies of Murray and Headlee (*J. infect. Dis.*, 1931, **48**, 436). The colour of the control tube is inspected when the drum is unpacked in the theatre and doubtful batches are unhesitatingly rejected.

By these means it is hoped to ensure that no batch of dressings will be used that is not certainly sterile.

The use of the control tubes, with their positive evidence of the application of steam for an adequate time, can always be retained, even under the simplest conditions, where the full technique is not possible.

To summarize—the use of the recording apparatus to check the work of the technician or nurse responsible for the sterilizing and to give him/her confidence in the manipulations, the employment of double evacuation to ensure rapid and adequate penetration of the steam throughout the materials, the loose packing of these, and the consistent use of the control tube as the final check accessible to the surgeon himself, provide a security which is well worth a little trouble and expense to attain.—I am, etc.,

Sheffield, Jan. 11. JOHN CHISHOLM.

Treatment of Scabies

SIR,—It may be of interest to those who may have to treat this troublesome complaint, especially in communities and institutions, to hear of my experience.

About the middle of the last war I was the only A.M.O. in a large mental hospital. We were very overcrowded, having had some drafts of patients in from other hospitals, and the nursing staff was depleted. During the early warm weather of one summer I detected some cases of scabies in a female ward of about sixty chronic and turbulent cases, the worst possible type to co-operate in any treatment, many of them being actively obstructive. The usual treatment—sulphur ointment and baths—was given, but fresh cases kept recurring. I also tried Vlemingkx's lotion, but this seemed to cause eczema in some cases.

I was getting rather desperate, but on reasoning from the fact that sulphur taken internally will cause silver articles and coins carried on the body to turn black, and that this is due to H_2S exuded from sulphur in the skin, and that fighting on internal lines of communication was just as topical then as it is now, I gave every patient in the ward a teaspoonful of confection of sulphur every day. The result exceeded my expectations. Within three or four days there were no more fresh cases, and within about ten days the ward was clear.

The patients took their confection willingly—maybe they had some unconscious urge to take it. The only complaint came from the nurses, who said the ward stank like a gasworks, and they were not much comforted when I pointed out that a gasworks was a very healthy place to live around, but they all worked very well and loyally.

Perhaps those people of past generations who used to dose themselves and their families with brimstone and treacle had more ideas in their method than the warding off of spring vapours and cleansing the blood. I cannot be dogmatic about this internal line of treatment as the external procedures were used with it; the time was not opportune for experimenting with controls, but in my own mind I have no doubt about the efficacy of it.

I do not know if this method of treatment is original, but I do say that I have never heard or read about it in any ordinary textbook; perhaps I have not delved deep enough into the subject.—I am, etc.,

Croydon, Jan. 14. H. M. BERNCASTLE.

Recurrent Attacks of Herpes

SIR,—The following case seems to be worthy of publication because of the rarity of such a condition and the apparent lack of any cause.

The patient, an ordinary seaman aged 22, suffers from recurring attacks of herpes of the left auricle. These occur every October without fail and the course is always the same. First blisters are noticed; then slight pain develops in the upper part of the sterno-mastoid muscle; finally both pain and blisters disappear after about two weeks. It is never complicated by sepsis; it never occurs except in October; it has happened as long as the patient can remember.

On examination the patient seems to be a perfectly ordinary individual of good physique, and with no detectable nervous lesions or other possible conditions which might account for the herpes. I got the impression, while taking the history, that the patient was truthful, and his story has remained consistent in spite of trap questions. The only explanation I can offer is that the condition is psychological in origin, but I have not had the necessary experience to investigate properly this side of the question. It is interesting to note that his birthday is in October. There is a history of mumps and measles as a child and tonsillitis three or four times, the last attack being seven years ago. There is no history of injury. The family history is also negative. The father died two years ago from a gastric haemorrhage; the mother, three brothers, and one sister are all alive and well. None of the family or their acquaintances had ever had herpes except the patient.

I would be very interested to hear from any who have seen cases of this nature before.—I am, etc.,

J. F. BURDON,

Oct. 22. Surg. Lieut., R.N.V.R.

Surgery in a Tented Theatre

SIR,—I was much interested in Major Rex Binning's description of surgery at No. 3 General Hospital (December 7, p. 794), but I would remind him that No. 20 General Hospital was even more a tented one than No. 3, as the whole hospital, including the operating theatre and the pathology department, was under canvas. The operating theatre was in an eight-section expanding hospital tent, with single walls but double roofs, which by means of spare wall sections was partitioned into three divisions, each division being subdivided

as follows. At one end: (1) a surgeon's changing room; (2) sisters' duty room; (3) sterilizing room; (4) storage. At the other end: (1) an anaesthetic room; (2) another storage room; (3) an alcove, which gave access to a covered tented way into the adjacent hospital ward, also of eight sections. In the centre was the theatre itself, with ample room for two tables.

We were also apprehensive about infection from dust, etc., but we believe that the risk was considerably minimized by an ingenious arrangement, devised by Major Ward and Major Ghey, whereby the greater part of the theatre proper was enclosed in an inner tent made entirely of linen sheets. This inner tent was suspended from the roof. The lighting was electric from a petrol-driven engine outside the theatre. The bulbs, magnified by reflectors made from petrol tins, were fastened to a wooden frame attached to two of the upright tent poles. By a system of pulleys this could be tilted and directed at different angles. For what such evidence is worth, it may be noted that 8-inch plates were exposed in the theatre, but after twenty-four hours only grew a few colonies of *B. subtilis*, sarcinae, and moulds. No pathogenic organisms were grown.

Though our period of functioning was much shorter than that at No. 3, our list of operations, which included an appendicectomy and a mastoidotomy, showed no post-operative infection and remarkably little post-operative pulmonary complications. I heartily agree with Major Binning that the method of working proved a very valuable experience, and enabled us to realize how, by ingenuity and improvisation, a high and successful standard of surgery can be maintained even in a tented theatre.—I am, etc.,

CHARLES H. BUDD,
Colonel, R.A.M.C.

Dec. 16.

Treatment of Jaw Injuries

SIR,—I have just noticed a letter on jaw injuries by Mr. E. D. D. Davis (April 27, 1940, p. 710). He mentions that at Rouen (presumably in the last war) an efficiently equipped dental department did excellent and skilful splinting and treatment of jaw injuries. This department, which I had charge of, provided all the early treatment he advocates. About one thousand compound fractures of jaws and severe facial injuries passed through. The grouping of these cases shed a light on the best treatment of haemorrhages, and the prevention of septic pneumonia, that deadly bugbear of pre-prontosil days. Early suturing was the rule, and sometimes a splint would be introduced and suture undertaken under the same anaesthetic, although local anaesthesia was generally the choice.

I offered to undertake the same work before and after the outbreak of this war, but apparently such a grouping of cases is not desired, although one would think that cases in the Middle East might well be spared the puckering deformities of delayed treatment and splinting.—I am, etc.,

H. E. H. TRACY,
i/c Oral Dept., B.E.F., 1916–19.

Halton Camp, Bucks, Jan. 7.

Convulsion Therapy in the Out-patient Department

SIR,—Dr. E. B. Strauss's letter (January 4, p. 31) casts an unwarrantable aspersion on institutional psychiatrists which cannot be allowed to go unchallenged. I am unqualified to speak on the question of electrical convulsant therapy, but from a fairly extensive experience of other methods of "shock" treatment I am prepared to admit the practicability of its application to out-patients. (Some years ago in Vienna I saw insulin therapy given to out-patients apparently quite successfully.) However, Dr. Strauss seems to consider that British psychiatry does not exist outside London. The majority of mental hospital superintendents throughout the country are "consultant psychiatrists," and their out-patient clinics are, I believe, almost invariably held at the nearest general hospital. It is difficult to understand, then, why the cases seen by them should differ materially from those attending Dr. Strauss's out-patient department. A study of the annual reports of the "more progressive mental hospitals" shows clearly the excellent work being done and the large number of cases in which the necessity for mental hospital treatment is avoided. Further, with the many new admission blocks which are now attached to mental hospitals it is possible to admit early cases to pleasant surroundings, where they can receive skilled nursing attention and in which they tend to recover more rapidly than do those who prefer to receive their treatment as out-patients. Thus it is sheer nonsense, and displays a complete ignorance of the existing facilities in almost every county, to suggest that the institutional psychiatrist does not know what early mental disorder is like. One is tempted to ask whether those psychiatrists who see practically nothing but early cases are capable of giving an accurate prognosis, as they are apt to forget, if they have ever known, what an advanced psychotic patient is like.

With regard to the early development of "asylum psychosis," I have yet to see a case of this curious disorder; the number of patients who after their return home write gratefully of their treatment and their readiness to attend for "follow-up" observation suggests that it is at any rate of no serious significance, if it exists at all.

Lastly, should one speak of voluntary patients being "compelled" to enter hospital?—I am, etc.,

J. C. SAWLE THOMAS.

The Mental Hospital, Berry Wood, Northampton, Jan. 13.

SIR,—As one associated with the introduction of the electrical convulsant treatment to this country from its inception, and who, together with my colleagues at Warlingham, has induced over 1,600 major fits upon some 130 patients since November, 1939, I feel constrained to venture an opinion regarding this out-patient application controversy. I do so with complete freedom from personally conditioned viewpoints, having practised this treatment under both in-patient and out-patient conditions with facilities for both.

Putting aside ingenious objections and unique occurrences, I know of no valid reason why electrical treatment should not be applied in the out-patient clinic by a competent psychiatrist. This is intended as a broad generalization and one based upon sheer experience—albeit predominantly institutional. That danger exists of this treatment becoming commercialized I can envisage, though that is another matter. There is danger, too, of indiscriminate application, a danger which will grow less as our criteria of selection improve—and improving they are.

One precaution we observe as a condition for out-patient treatment—namely, that every patient so treated shall be escorted by a responsible relative or friend. This precaution arises not from any of the alleged drawbacks hitherto mentioned, but because of amnesia, which in varying degrees is a transitory post-therapeutic phenomenon constantly observed.

I would add that 75% of our admissions to the Warlingham Park Hospital last year were voluntary, and from these a large proportion electrically treated were drawn. The cases treated latterly, in short, differ in no way from the out-patients and cannot be regarded as institutionalized.—I am, etc.,

WM. H. SHEPLEY.

Warlingham, Jan. 13.

Tuberculosis and Shelters

SIR,—I was glad to see Dr. C. K. Cullen's letter (January 11, p. 61) regarding the Ministry of Health's suggestion for dealing with cases of open tuberculosis known to frequent public shelters. It seems to me that the difficulties in connexion with compulsory removal to hospital of such cases have not been fully realized. By what means are such cases to be discovered? Are the confidential notification registers to be used for this purpose and the tuberculosis officers expected to act as public informers? If this is so (and apart from such a method I fail to see how cases of open tuberculosis are to be discovered), then, however unwittingly, the tuberculosis service will be dealt a death blow.

Since its inception this service has been built up on the confidence the public have shown in the dispensaries, and this confidence will be gravely impaired. People who normally are referred to a dispensary for investigation will fear to attend in case they are found to be tuberculous and be forced to accept institutional treatment because they happen to use a public shelter. Also, as Dr. Cullen points out, it will bring about the disappearance of patients from dispensary supervision. Let it be understood that once the dispensary service

loses the confidence of the public it will take many years to regain such confidence, and during the post-war period, when tuberculosis may increase, we shall find that fresh cases will not be brought to light until they have advanced beyond curability, and who meanwhile will have been infecting other people.

Although one recognizes that the tuberculous in shelters do present an undoubted danger to the general public, it seems to me that this is much exaggerated. From knowledge of East London, I am aware that only a very small number of known cases of open tuberculosis do, in practice, frequent public shelters in that area. Give the open cases of tuberculosis adequate alternative sheltering adapted to their condition and sufficiently attractive—that is, warm, dry, well lighted, and with a modicum of safety—and the few open cases of tuberculosis at present using public shelters should be easily persuaded, without compulsion, to use it.—I am, etc.,

London, E.1, Jan. 14. R. M. ORPWOOD.

Opening the "Register"

SIR,—The Press announces that two Orders have been made authorizing the inclusion of oversea doctors temporarily in the *Medical Register*. The first Order applies to doctors qualified to practise in Canada or the United States who are *wanted in the Emergency Medical Services*. The second applies to doctors qualified to practise in any part of the British Empire or in the countries of our European Allies, or in Germany or Italy. These men are *wanted* for service with the Allied Forces and *in approved hospitals*. Except doctors from Canada or other parts of the Empire who are British subjects, and to whom my remarks do not apply, the doctors to whom these two Orders refer are aliens. The italics are mine, and to some of your readers it may be news that doctors are *wanted*, in the sense of their services being urgently needed to supply a want, either in the Emergency Medical Services or in approved hospitals.

In the London area I and those of my medical friends with whom I have compared notes complain of lack of work; the authorities will add to our discontent if any alien doctor is given any work so long as that work could be equally well done by a British doctor who is in need of employment. This may seem ungracious, but Justice has precedence over Charity.—I am, etc.,

London, W.8, Jan. 15. HALLIDAY SUTHERLAND.

"Egyptian Tummy"

SIR,—I have read the various letters on the above condition and wish to add my observations. Drs. Leigh Canney and V. S. Hodson (January 11, p. 64) both ascribe this ailment to meteorological causes—namely, the rapid cooling of the body surface. During my experience as a ship surgeon on Indian and African voyages I came across this condition, which I diagnosed as a "chill," each time we came into hot weather. In every case there were two common factors exhibited: (1) each patient was making a first trip into the Tropics; and (2) each was upset by the heat and slept with either the minimum amount of clothing or none at all, and allowed the electric fan to play directly on the body.

The symptoms of three cases were those of lower abdominal pain associated with frequent and painful micturition. The remainder, about ten cases, displayed generalized abdominal pain of a "colicky" type associated with diarrhoea and malaise. In the first group chemical examination of the urine failed to detect any traces of albumin. In the second group, owing, unfortunately, to the complete lack of apparatus, etc., no bacteriological examination of the stools could be made. Questioning in each case established a negative history for dysentery or allied enteritic conditions, either recent or remote. This, coupled with the common factors mentioned above, led me to make a diagnosis of "chill."

I made inquiries about this condition from one or two ship's officers who had been on tropical voyages for several years, and they assured me that it was fairly common in "first trippers" when they first met really hot weather. The advice they had always given was to allow the fan to play directly on to the bulkhead above the bunk instead of directly on to the body, thus disseminating the force of the draught and reducing the rate of cooling, and always to cover the abdomen with something, such as the sheet rolled round like a diaper. Treatment, which was successful, consisted of local warmth in the shape of a scarf or binder wrapped round the abdomen, mild gastric sedatives, light diet, and the advice about the draught as given above.—I am, etc.,

Glasgow, Jan. 14. T. T. FERGUSON.

Perspiration and Flannel Clothing

SIR,—Dr. Leigh Canney's letters to your *Journal* (December 7, p. 806; January 11, p. 64) sound exceedingly practical, and lead me to relate a chance discovery with regard to flannel clothing in any perspiring patient.

An embryo medical student returned from a lecture by Mr. R. Ablett, M.Sc. (Lecturer in Physics, Liverpool University), and related how he had demonstrated the high temperature which is created when there is a change of surface tension as moisture replaces air in flannel. Take a clinical thermometer, wrap round it a thin strip of dry flannel, place it in the mouth, and in five minutes the temperature registered by the thermometer will be 106° to 110° F. This is the temperature of the flannel and not of the mouth. An amazing temperature, therefore, will be recorded in any patient who is allowed to suck a dry handkerchief, or any part of clothing should the thermometer touch this clothing. If the axilla is dried and the thermometer and a piece of dry clothing placed in the axilla the same occurs. It has long been customary to place all sweating patients between blankets, and if these are changed when wet we are keeping our patients in a warming apparatus far superior to any electrical device.

Dr. Leigh Canney's patient was sweating in a thin night-dress. That warm Turkish towel saved her life. He is to be congratulated upon his observation.

I would like to thank Mr. Ablett for his scientific explanation.—I am, etc.,

Liverpool, Jan. 13. R. KENNON.

Human Fertility

SIR,—I was much interested in Dr. John Pryde's article (January 4, p. 12) on the study of human fertility, and in Dr. J. D. Flew's letter (January 11, p. 66) citing two cases which came under his observation and which seem to point in the opposite direction to Dr. Pryde's conclusions.

May I record a case which came under my observation a few days ago: A young married woman with one child aged 3 years living. Two previous miscarriages, the last occurring in July, 1940. Following this there was a normal menstrual period commencing on August 7, 1940. (She has a regular cycle, 5/28.) Her husband is on active service and returned for ten days' leave prior to embarkation on August 26–September 3. Coitus occurred each night during this time, which therefore was *after* the "safe period of Knaus." In this case the fertile period should have been August 17–22. On examination she was approximately twenty weeks pregnant.

In the present state of our knowledge I don't think we can rely on this "safe period."—I am, etc.,

Lydd, Jan. 15. RUPERT PALMER.

Medical Examination of Home Guard

SIR,—In reply and contradiction to Dr. L. J. Forman Bull (January 11, p. 65), may I point out that at least in the Salford Battalion of the Home Guard voluntary medical inspection of every volunteer has been in force for two months. The men have as full an examination as circumstances permit, but they are not told what their physical condition is. Instead I make a report to the C.O., and men are then placed on duties which they can easily perform. In this way the voluntary nature of the Home Guard is kept up, and so far as is humanly possible no man is called on to do work of which he is incapable.

The Director-General, Home Guard, said that he would try to make an honorary M.O. an integral part of every Home Guard battalion in the country after he had heard and seen what we have done. I hope that this answers Dr. Bull satisfactorily.—I am, etc.,

Dobcross, Jan. 17. E. WYNNE-JONES.

Adie's Syndrome

SIR,—I thought that the above term for the phenomenon in question had been accepted in both Great Britain and other countries for the sake of convenience and to avoid further wrangling on the question of priority. However, Mr. R. Foster Moore's letter (January 18, p. 99) shows me that this is not so, and therefore I write to claim priority for my colleague Dr. Charles Markus. What is called "Adie's syndrome" is the association of "myotonic pupil" (generally unilateral) with (apparently idiopathic) absence of tendon reflexes—absence of patellar or ankle reflexes or both. There is a tendency to regard a myotonic pupil without loss of tendon reflexes as an incomplete form of Adie's syndrome. It has even been suggested that some cases of apparently idiopathic absence of tendon reflexes, without pupillary changes, are also to be regarded as examples of incomplete Adie's syndrome.

Dr. C. Markus in October, 1905, demonstrated a boy aged 12 years (*Ophthalm. Society's Transactions*, 1906, **26**, 50) with typical right "myotonic pupil" and absence of patellar and ankle reflexes. "Myotonic pupil" had been described in Germany as early as 1902, but Markus laid particular stress on its association in this boy with absent tendon reflexes, and he even took the trouble to get me to confirm the latter phenomenon before demonstrating the case, which was in fact the first demonstrated example of what is now called Adie's syndrome. Markus at the same time suggested a pathological explanation —namely, that the change might be a local "abiotrophy" in Sir William Gowers's sense, and this explanation has not been proved incorrect. Moreover, twenty-seven and a half years later I showed the same patient for Dr. Markus at the Royal Society of Medicine (*Proceedings*, 1933, **26**, 530); the pupillary and tendon-reflex phenomena were still present as before, the patient having continued to enjoy good health; he was married and had two healthy children, and his blood serum gave negative Wassermann and Meinicke reactions. This case, therefore, confirms the benign nature of Adie's syndrome. A typical case of myotonic pupil, likewise described by Dr. Markus in 1905, was that of an old friend of mine. He is now in his seventy-sixth year and his myotonic pupil remains unchanged.—I am, etc.,

London, W.1, Jan. 18. F. PARKES WEBER.

Cut Tendons

SIR,—The interesting letters, especially the thoughtful letter of Dr. James Mennell (December 14, p. 848), prompt me to make a few remarks on this subject. I must at once say that I speak as an onlooker, not as a general surgeon. The importance of the subject must be my excuse for this letter.

When flexor tendons in the hand are cut most people give a bad prognosis for complete recovery. The out-patient sister will tell you she has rarely seen a case get perfect flexion; the matron at the nursing home and the massage sister will tell you the same; even the surgeon will warn you that adhesions are likely to form and that movement may not be complete. Mr. A. Wilfred Adams (November 30, p. 765) suggests that accurate suturing of the cut ends is the key to success. This, of course, is of the utmost importance. No doubt fine sutures and fine needles are required as well as a delicate surgical touch. How nicely an ophthalmic surgeon would do this job!

But this is only one aspect of the problem. First of all asepsis is of the utmost importance. We must expect adhesions if a septic infection of the tendon sheath occurs. Here I would suggest that the hand should be washed in running water for a quarter of an hour, and then soaked in biniodide solution 1 in 1,000, or proflavine solution 1 in 1,000, for a further fifteen minutes. Proflavine sulphate 0.1 buffered to *p*H 6.3 in distilled water has been shown by Drs. Russell and Falconer to have the minimum toxicity to tissues, while its bactericidal properties are equal to the other acriflavine preparations. It was described by Dr. Garrod in a recent discussion at the Royal Society of Medicine as the "ideal antiseptic."

Now for the problem of the tendon. This may be compared to a train running in a tube—a train which is in contact not only on the ground but also on the sides and on the roof, and separated from its walls by a lubricating fluid. The train slides to and fro in this tube. When a tendon is cut, our tube and train are cut in two. Now how are we going to join up our train without damaging the tube in which it runs? Let us take the case of a cut flexor profundus tendon. In seeking for the proximal end of the tendon, which has contracted up a couple of inches, it is customary to slit up the tendon sheath until the tendon is found; bandaging the forearm and flexing the hand will help to reduce the gap. In the case of our train, slitting up the sheath would mean cutting away the roof and most of the sides of our tube, thus collapsing the superficial structures on to our train. No matter how carefully the carriages are united together, our train would never again run smoothly to and fro. Dense adhesions must form on the roof and sides of a tendon thus exposed. The sheath is extremely thin and almost impossible to identify after it is slit up. Sewing up of the sheath over the tendon seems to be impossible, although so desirable.

Is there any way of preserving our tunnel while we look for our train? The following suggestion is purely theoretical on my part. It is that the tissues over the proximal end of the tendon should be carefully dissected down to, but not into, the sheath. Then a longitudinal slit about a centimetre long should be made about two inches from the cut end of the sheath. If the tendon can now be identified through the slit a very fine bougie can be passed through the slit up to the cut end of the sheath. Once the mouth of the sheath is identified a fine crocodile forceps could be passed up the sheath, and the cut end of the tendon drawn down. The tendon ends can then be accurately joined up with fine sutures all round their periphery and the tissues replaced.

Here the damage to our tunnel is only the cut in the roof and the slit further up. Any adhesions at these two points would not be serious and would yield to passive movement. With the usual surgical technique of slitting up the tendon sheath the outlook for good flexion of the terminal joint must be poor, no matter how early and skilfully passive movements are applied. One may ask if it is fair to leave these operations, the success of which is of so great importance to the individual, to newly qualified house-surgeons. Surely they merit the skill of the R.S.O. or one of the surgical staff, and should be treated as major operations.—I am, etc.,

Guildford, Jan. 17. T. B. JOBSON.

Too Old for Service

SIR,—The medical profession should take a definite stand upon the question of medical fitness for service. At present at one end of the scale there is flexibility, at the other end rigidity. A man of 21, for example, is assumed to be fit to be called up for service for his country's needs. If, however, he claims that he is medically unfit, then the medical examination and the medical decision is final as to fixing his place in his country's defence. A man of 70, on the other hand, is automatically disqualified for age only; the assumption is that owing to his age he is unfit and he is not allowed to disprove the assumption. A man of 21 is assumed to be fit, but he is allowed to bring evidence to prove his unfitness on medical grounds. Surely it is equally scientific for a man of 70 to submit to medical examination, and to prove thereby that he has the constitution, physical and mental, of the average man of 40 or 50. I know the economic objections that are usually raised, but they are comparatively unimportant in the face of the great principle that in the time of the country's need every man should be assessable at his scientific value and not at his age mintage.—I am, etc.,

London, W.1, Jan. 14. JOSIAH OLDFIELD.

Medical War Relief Fund

SIR,—I should like to pay a tribute of grateful thanks to the Medical War Relief Fund. As a result of enemy action my property was very severely smashed up. The committee of the fund came to my relief with a courtesy and speed which astonished me. I received a substantial loan (interest-free), which has made all the difference between a very hard knock and a crushing blow. I feel that my colleagues have come to my rescue in a noble manner, and I am proud of our profession, which has been able so quickly to raise a fund for the relief of its less fortunate members.—I am, etc.,

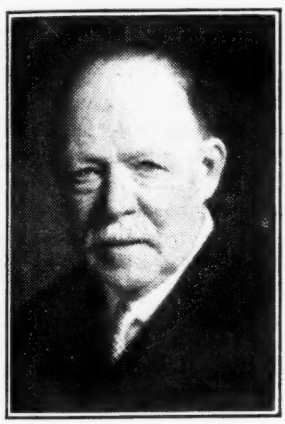
Jan. 19. A VICTIM OF THE BLITZ.

Obituary

CHARLES THURSTAN HOLLAND, F.R.C.S.

We regret to record the death on January 16, at the age of 77, of Mr. C. T. Holland of Liverpool, recently lecturer on radiology at the Liverpool University. Mr. Holland was one of the pioneers in his specialty, and did more than any other man to further radiology and establish it as a department of medicine that could take its place on an equal footing with other special branches.

Charles Thurstan Holland, the son of the late Alderman W. T. Holland, was born at Bridgwater, Somerset. He was educated privately and at University College Hospital, qualifying M.R.C.S., L.R.C.P. in 1888. He took the Ch.M. Liverp. in 1922, became F.R.C.S. in 1928, and was made LL.D.Liverp. in 1935. After qualification he went into general practice in Liverpool, and soon after Röntgen made his discovery in 1895 Holland quickly saw the possibility of applying *x* rays to medical and surgical problems. His enterprise and early work were quickly recognized, and he was appointed honorary radiologist to the Royal Southern Hospital, Liverpool, in 1896, where he worked in this capacity until 1904. From then until 1923 he was honorary radiologist to the Royal Infirmary at Liverpool. During the war of 1914–18 he was radiologist to the First Western General Hospital and consultant radiologist to the Western Command, holding the rank of major, R.A.M.C.(T.). In 1918 he was a member of the War Office Committee on Radiology.



Thurstan Holland was in the true sense of the word a pioneer. After he left general practice he worked in very close association with Sir Robert Jones, and this association played a great part in his success in developing and applying the new technique in his professional work. Not only did he have the vision to see the vast possibilities opened up by Röntgen's discovery, but he also had the strength of mind and forcefulness of character needed to overcome obstacles that are inevitably put in the path of the pioneer. He never hesitated to speak his mind, and his straightforward approach to problems always cleared the path in meetings and discussions when indecision seemed to prevail. As a chairman he was masterly and did not allow members of a committee to stray far from the point at issue.

So much of his time and energy were taken up by clearing the ground for the recognition of the new specialty that he was able to make few fundamental contributions to the new science. He will always be remembered as a pioneer, and as such was widely recognized in the numerous official positions he was asked to hold. The honour he most valued was his election in 1925 as president of the first International Congress of Radiology, which was held in London. He was president of the Röntgen Society in 1904 and 1916, president of the Section of Radiology at the Congress of Radiology and Physiotherapy in London in 1922, and president of the British Institute of Radiology in 1929. He was a member of the British Medical Association for fifty-four years, and was vice-president of the Section of Radiology and Medical Electricity at the Annual Meeting in 1910; president of the Section of Electrotherapeutics at the Liverpool Meeting in 1912; and vice-president of the Section of Radiology in 1932. He had a high reputation in the U.S.A. and was made an Honorary Fellow of the American College of Radiology; he deeply regretted that poor health did not allow him to be present at the fifth International Congress of Radiology, which was held in Chicago in 1937.

He published numerous papers on radiology in the medical press and was for a time a regular contributor to the *Medical Annual*. His energy and interest carried him into fields other than medicine, and he lectured on climbing and photography, being the first president of the Lancashire and Cheshire Photographers' Society. He was also Deputy Lieutenant for Lancashire. His wife died in 1924, and there was one son of the marriage.

[The photograph reproduced is by Elliott and Fry, Ltd.]

H. E. BOWER, M.D.

Dr. Harry Edward Bower, who died at his home, Viewfield, Stretton, Cheshire, on December 31, aged 74, studied medicine at Edinburgh University, qualifying M.B., C.M. there in 1887. He took his M.D. in 1905. After six years as assistant to his cousin in Weaverham he settled in Stretton, where he spent forty-eight years in family practice. He had been a member of the British Medical Association for fifty years.

Dr. L. J. PICTON writes: "Old Smith" was a character, shrewd, of disconcerting plain speech, a game shot, an archer, above all a doctor. He was generous to the many poor, to whom he never sent a bill, but, almost Robin-Hood-like, he made the very rich pay the full value of his undoubted services. Harry Bower, his roots in the soil, his formative years spent in "the Athens of the North," and his apprenticeship (in all but name) under the ripe, practical wisdom of his much elder cousin, was the product of those influences on a character drawn into medicine by an interest which remained to the end unflagging. Keen but mild, with a mastery of detail which did not distract him from essentials, with a constant habit of picturing in his mind how the patient before him had come to be what he was, naturally urbane, a happy talker, appreciative of kindness, a worshipper of children, Bower was a family doctor, endowed for his task. Therapeutics was almost his hobby, and the new as familiar as the old. One innovation appalled him—the obligation to write panel "scripts." He would rather make the medicine than write it. For over a quarter of a century Bower served on the county panel committee. His balanced judgment reposed on experience begun as demonstrator of anatomy at Edinburgh University and as house-physician and house-surgeon at the Edinburgh Royal Infirmary and continued in a full range of the ordinary preoccupations of a country doctor—not least important in his eyes being his position as medical officer of the Runcorn Union. He was medical superintendent of the Isolation Hospital, Dutton, certifying factory surgeon, an honorary life member of the B.R.C.S., a J.P. for the county of Cheshire, and, during the last war, medical officer of the Oaklands Military Hospital, Daresbury, and the Raddon Court Military Hospital. At the time of his death he was a county councillor, representing the Appleton Division; he had served an earlier term in this capacity. He was a governor of the Boteler Grammar School. A Freemason, he was a member of the North Cheshire Lodge. In 1899 he married the daughter of C. T. Whitley, J.P., of Stretton, who survives him with two sons and three daughters. His eldest son, who succeeds him in practice, is now on active service.

H. C. WILSON, M.D., F.R.C.S.

We regret to record the recent death from coronary thrombosis of Dr. Hugh Cameron Wilson. He was born in Edinburgh in 1883, and was educated at George Watson's College; on leaving school he began his medical career at the University of Edinburgh. Wilson was a brilliant student, graduated with honours in 1906, and took his M.D. with a highly commended thesis two years later. He held resident appointments at the Royal Infirmary of Edinburgh for a year, and then took a single ticket to London. He was house-surgeon at the Seamen's Hospital, Greenwich, Paddington Children's Hospital, and resident surgical officer at the Great Northern Hospital. He took the F.R.C.S. in 1911 and intended specializing in surgery. The opportunity arising, he joined Dr. E. C. Montgomery in practice in Maidenhead in 1912, and in 1914 he introduced his boyhood friend, Dr. E. R. D. Maconochie, into the practice. He was soon appointed surgeon to the Maidenhead Hospital, and until his death was mainly responsible for the surgical work of the district. During the 1914–18 war he was a major in the R.A.M.C., acting as surgical divisional officer in a hospital in France.

During the past twenty-two years his skill as a surgeon has been in great demand. He was a brilliant surgeon, quick, neat, and accurate. He was a very popular and hard-working man, loved by rich and poor alike, and the humblest was treated by him in a kindly and courteous manner. His hobbies were occasional golf, fly fishing—in which he was something of an expert—and the local hospital. He was E.M.S. medical superintendent of the hospital, as well as surgeon, and took a great interest in its affairs and management, apart from his interest as a surgeon. The hospital will miss the jaunty air, quick step, and red carnation in his buttonhole, and his like will be hard to replace. He was of a somewhat retiring disposition apart from his medical world, and he took no part in public affairs. He was a true friend to many. He is survived by his widow and one daughter.

T. LAWSON McEWAN, M.B., CH.B., D.P.H.

By the death of Thomas Lawson McEwan on January 13 at the age of 48 his colleagues have lost a staunch friend and Devon its first county bacteriologist.

Dr. McEwan was educated at the Harris Academy, Dundee, and at the University of St. Andrews, where he graduated B.Sc. in 1914, with honours in chemistry, mathematics, and physics. He then went to London and continued the study of chemistry and biology at King's College, University College, and Birkbeck College. Later he became principal assistant to the public analyst for the City of Westminster and for the borough of Fulham. He was given a commission in the Argyll and Sutherland Highlanders, but was transferred in December, 1916, to the Ministry of Munitions as a research chemist. In the following year he went to the Research Department at Woolwich Arsenal. His research work there was published in the *Journal of the Society of Chemical Industry*, and he was elected F.I.C.

Wishing to take up medico-scientific work, a project which had been interrupted by the war, McEwan returned to St. Andrews to study medicine, where he was an outstanding student, and in June, 1928, graduated M.B., Ch.B. with special distinction, gaining the McEwan prize in surgery. After being house-physician at Dundee Royal Infirmary he became assistant to Prof. W. J. Tulloch, who wrote of him: "As a student of bacteriology he showed himself to be a man of outstanding ability. He was easily the best student of his year in my subject, and, indeed, was the best student of his year in the majority of the subjects in the medical curriculum. He gained the medal in the class of bacteriology, his marks being among the highest that had been recorded in the examination. Subsequently he also distinguished himself in the class of bacteriology for the D.P.H." In 1930 McEwan was appointed bacteriologist to the Devon County Council, a post he held up to the time of his death. This new department he organized with great skill and enthusiasm, and gradually built up a laboratory on first-class lines.

The indomitable courage with which he bore his long and fatal illness was what those who knew him well would have expected of him, but his death leaves a sad gap, and he did not live to see the fulfilment of his cherished and carefully laid plans of a new laboratory, upon which he had spent so much thought and time. In 1919 he married Elizabeth Holt Ogilvy, who survives him with their two daughters.

R. B. F. McKAIL, M.B., CH.B., D.P.M.

Dr. R. B. F. McKail, who died on January 10 after a long and distressing illness which he bore with great courage, was educated at Allen Glen's School, and in 1909 graduated M.B., Ch.B., with commendation, at the University of Glasgow. In his student days he won the Arnott Prize and the Black Medal and Muirhead Prize. After qualifying he worked for two years as demonstrator in the Anatomy Department in his own university. In 1911 he entered the service of the Lancashire Mental Hospitals Board at the County Mental Hospital, Prestwich, and later served under the same authority at their hospitals at Winwick and Whittingham. In the war of 1914–18 he served with the rank of captain in the R.A.M.C. in Gallipoli, Egypt, Sinai, and Palestine. He was twice mentioned in dispatches, but his health was affected, and from this ill-health he never fully recovered. On demobilization in 1920 he was appointed deputy medical superintendent at the Calderstones Certified Institution for Mental Defectives—once again under the Lancashire Mental Hospitals Board—and in 1933 became the first medical superintendent of the Brockhall Certified Institution, Langho, near Blackburn. In September, 1937, continued ill-health compelled him to retire, and he returned to his native city of Glasgow. Dr. McKail was for many years a member of the British Medical Association and the Royal Medico-Psychological Association. His wife predeceased him in 1937.

Dr. DOUGLAS J. ROSE, medical superintendent of Brockhall Institution, writes:

Having myself spent twelve years as one of McKail's junior colleagues I should like to add my personal appreciation of his remarkable ability and great personal charm. Throughout his career he was exceptionally popular among his professional colleagues, his patients, and the staffs of the institutions at which he served. Often in indifferent health, he never spared himself, but devoted himself whole-heartedly to the interests of his patients. No junior colleague ever sought his help or advice in vain. With a broad general culture and unfailing interest in men and affairs he combined a wide experience and acute clinical judgment in his own specialty. A keen follower of sport and athletics, his varied interests made him a most acceptable social companion to all sorts and conditions of men. During the last few years of his active professional life his knowledge, energy, and mastery of detail were devoted mainly to the preparation of the Brockhall Extensions Scheme, but rapidly failing health prevented him from seeing the fruits of his labours. The institution, now almost completed, will, however, stand as a tribute to his wisdom and foresight.

It is with regret that we record the death at Ross-on-Wye on January 4 of Dr. ALFRED HUMPHREY-DAVY of Bournemouth. A Galway man, Humphrey-Davy first studied engineering at the Queen's College, Galway, obtaining the B.E. degree. Directly afterwards he started to study medicine, and graduated M.D. and M.Ch. in the Queen's University in 1870. For a time he was a medical officer at Hoxton House Asylum, and later, from 1879 to 1894, he was in general practice in the Sheffield area. He moved to Bournemouth in the latter year, where he built up a considerable practice. During the last war he acted as physician to the Herbert-Home Belgian Hospital in Bournemouth. He was honorary physician to the Victoria Cripples Institution, Bournemouth, until 1929, in which year he retired from practice. The late Prof. A. Carter of Birmingham told the writer of this notice that his father once asked Sir William Jenner what he considered the essential ingredients in a physician's character. The reply was he must be "kind, honest, and dogmatic!" Certainly Dr. Humphrey-Davy had all these qualities in full measure. He was a very devoted member of the British Medical Association and was a past chairman of the Bournemouth Division and past president of the Bournemouth Medical Society. While a student at Galway he was stroke for three years of the winning team in the college boat races and was presented with a gold medal. He died a widower, leaving a son and daughter to mourn a very beloved father.—W. J. S.

AWARDS FOR GALLANTRY IN CIVIL DEFENCE

A *Supplement* to the *London Gazette* dated January 17 contains a list of awards for gallant conduct in air raids and includes the names of three medical men who have been awarded the George Medal and five others who have received commendations for brave conduct in civil defence. Dr. André Bathfield (Royal Chest Hospital, London), Dr. Henry Norman Gregg (Coventry), and Dr. Robert Lindsay (Folkestone) receive the George Medal, and Dr. Roy McGregor Barron (Eastbourne), Dr. John Fenton (Eastbourne), Dr. Alistair William MacQuarrie (Brightlingsea), Dr. Laurence Alfred Howard Snowball (Eastbourne), and Dr. Charles Keith Vartan (Hither Green) receive commendations. The official description of the gallant conduct of the George Medallists is as follows:

Dr. ANDRÉ BATHFIELD: "Dr. Bathfield, although badly cut in many places about the face and neck and bleeding profusely, assisted in the rescue, treatment, and dressing of patients and staff, and did not leave the hospital for the treatment of his own wounds until every injured person had been removed. He worked untiringly for the patients and nurses."

Dr. HENRY NORMAN GREGG: "When the City of Coventry was heavily bombed by enemy aircraft Dr. Gregg showed a high degree of courage and resource which contributed to the saving of a number of lives. While fires were raging and bombs falling, he coolly continued to go, partly on foot and partly by bicycle, from one incident to another administering morphine to those trapped in the wreckage, and applying first aid under conditions of extreme difficulty, with complete disregard for the intense bombardment and for the very real personal danger entailed."

Dr. ROBERT LINDSAY: "Two children were trapped under the debris of some houses demolished as a result of enemy action. At great personal risk to himself, Dr. Lindsay crawled through a gap in the debris and sawed through fallen woodwork so that the children might be rescued. His danger was increased by escaping gas. At another house, which was completely demolished, Dr. Lindsay crawled through a hole made in the debris to the aid of a trapped boy, cleared the boy's face of earth and rubble, administered morphine to him, and directed the operations of the rescue party. The boy was eventually released. Dr. Lindsay acted at considerable risk to himself and it was mainly due to him that the children were rescued alive."

Medico-Legal

THE MONEY VALUE OF LIFE

Before the Law Reform Act, 1934, a ground of personal action died with the person. If a man was killed in a motor accident his widow had no claim against the other party to the collision except as a dependant under the Fatal Accidents Act. By the 1934 Act the deceased man's estate was given the same rights of action as he had at the moment of his death, and by the decision of the House of Lords in Rose *v.* Ford[1] the estate was held to have a claim for the man's loss of expectation of life. In the subsequent years the courts have wrestled with the problem of fixing the appropriate damages for the loss of expectation of life to persons dying at various ages and in various circumstances. At the root of the problem there always lies, of course, the absurdity of compensating a survivor for a wholly fictional wrong supposed to have been suffered by the deceased. A recent decision by the House of Lords[2] has clarified the position to some extent, while introducing some new and remarkable considerations. Viscount Simon, Lord Chancellor, declared that the right conclusion is not to be reached by applying a statistical or actuarial test. The thing to be valued is not the prospect of lengthened days, but the prospect of a predominantly happy life. In extreme old age the brevity of the expectation of life may be relevant, but in general it is of no assistance to know how many years may have been lost unless one also knows how to put a value on the years. The ups and downs of life, its pains and sorrows as well as its joys and pleasures, have to be allowed for in the estimate. Such a problem, Lord Simon suggested, might seem more suitable for discussion in an essay on Aristotelian ethics than in a court of law. Before damages are awarded under this head the court must be satisfied that the circumstances of the individual life were calculated to lead, on balance, to a positive measure of happiness, of which the victim has been deprived by the defendant's negligence. If the character or habit of the deceased were calculated to lead him to a future of unhappiness or despondency, that would be a circumstance justifying a smaller award. As Lord Wright said in Rose *v.* Ford, special cases suggest themselves where the termination of a life of constant pain and suffering cannot be regarded as inflicting injury, or at any rate the same injury as in more normal cases. Moreover, the question is not whether the deceased had the capacity or ability to appreciate that his further life on earth would bring him happiness. The test is not subjective. The right sum to award depends on an objective estimate of the kind of future the victim might have enjoyed. Pecuniary prospects do not come into the picture.

When the deceased is very young, there is necessarily so much uncertainty about his future that no confident estimate of prospective happiness can be made. If the deceased, on the other hand, is old enough to have settled prospects, and to have attained in some degree to an established character and to firmer hopes, his future becomes more definite and the extent to which good fortune may probably attend him more calculable. In no case, however, should the social position or prospects of worldly possession be considered. Lawyers and judges may here, Lord Simon observed with satisfaction, join hands with moralists and philosophers and declare that the degree of happiness to be attained by a human being does not depend on status.

His Lordship admitted that the jury or judge of fact is attempting to equate incommensurables. Damages which would be proper for a disabling injury may well be much greater than for deprivation of life. For these reasons, whatever the age of the deceased, very moderate damages should be awarded. In the case before their Lordships the deceased was a boy of 2½ years and the trial judge had awarded £1,200. The Court of Appeal had reduced this to £350. The House (which, because of the importance of the case, consisted of seven Law Lords) reduced this further to £200. They hoped

[1] 1937, A.C., 826.
[2] Benham *v.* Gambling, 1941, 1 All E.R. 7.

that the views expressed in the Lord Chancellor's judgment might help to set a lower standard of measurement for what is in fact incapable of being accurately measured in coin of the realm.

In future, therefore, when a court is asked to assess damages for loss of expectation of life, it will be open to the parties—and indeed necessary—to lead evidence to show the prospect of future happiness which the deceased had at the moment of his death. The scope of such evidence seems to be almost without limit, and to include all kinds of intimate personal, and indeed psychological, details about the deceased. Whereas the personal representatives may endeavour to show that the deceased was virtuous, hardworking, and a good husband and father, the negligent motorist may be able, by patient investigation, to show that he was a secret drinker or gambler, or kept a second establishment under another name. His intimate friends may be subpoenaed and cross-examined for information about his attitude to life; if he was ever under psychological treatment, the psychologist may be required to give a complete account of his analysis. Moreover, happiness as a basis for the value of human life seems difficult to justify either on philosophical or moral grounds. Their Lordships have given a new direction to the decision of expectation of life cases, but can hardly be said to have made that decision any easier.

Medical Notes in Parliament

The House of Commons reassembled on January 21.

On January 21 Sir ERNEST GRAHAM-LITTLE asked the Lord Privy Seal in what form questions on the advisability of adding synthetic vitamin B_1 to the war loaf were put to the Bragg Committee, whose formation was announced on June 4, 1940; whether the committee, before making its recommendations, was informed of the agreement with Roche Products, Limited; if he would now publish the Bragg Report or lay it on the Table of the House, or give reasons for not doing so; how many meetings this committee had held; when was the last; and whether it was still in existence or had been superseded by other advisory committees whose formation had been announced since the Minister's speech on July 18.

Mr. ATTLEE said that the report of the Scientific Food Committee on Bread was submitted on their own initiative. He understood that the committee was aware of the only agreement with Roche Products, Limited, then existing—namely, an agreement between that company and another company. He saw no reason in the circumstances to make a departure from the normal rule whereby reports of this nature were not published. The committee was still in existence and held regular meetings, and he deprecated giving the very detailed information asked for.

On January 21 Sir HENRY MORRIS-JONES asked the Minister of Health whether he had any statement to make concerning the admission to the *Medical Register* of alien allied doctors to assist us in the present emergency.

Mr. MACDONALD said that the Home Secretary, the Secretary of State for Scotland, and he had made an Order providing for the registration of these doctors under certain conditions.

On January 21 Dr. MORGAN asked the Secretary of State for War whether he was aware that there was grave disquiet among medical practitioners at the fact that many officers of the Royal Army Medical Corps were engaged exclusively, or principally, on administrative and non-professional work; and whether he would cause the matter to be investigated and corrected, and so reduce the demands on civilian practitioners for service with the armed Forces.

Captain MARGESSON replied that he was not aware of any grave disquiet, but it was the fact that, as happened also in civil departments, many officers of the Royal Army Medical Corps were engaged exclusively on administrative work which could not be efficiently performed by laymen. There were certain appointments which had in the past been held by medical men, but could, by an adjustment of duties, be held by non-medical men. These were now being reviewed. Some medical officers had already been replaced, and the remainder would be replaced where possible.

Mr. MACDONALD told Mr. Benson on January 21 that supplies of an insecticide selected as a result of experiment had been issued to the local authorities of the areas in which people habitually slept in public shelters. The best protection against lice was cleanliness, and local authorities had been urged to ensure that their cleansing facilities were adequate to meet the additional needs of shelterers in their areas. Compulsory powers to delouse and cleanse the persons and effects of shelterers had been obtained, and other steps to prevent the spread of lice in shelters had been taken or were under consideration.

On January 21 Dr. MORGAN asked the Secretary of State for War, having regard to the recent announcement by the Central medical War Committee about volunteers for ordinary commissions in the Royal Army Medical Corps, how many doctors had volunteered up to November 30, 1940, and had not yet been called; why volunteers were required to communicate with their Local Medical War Committee when all that that committee was able to do was to transmit names to the central committee; and if he was aware that many doctors who volunteered months ago and were told to hold themselves available were still without definite information and, consequently, in a state of uncertainty as to their domestic and professional arrangements.

Mr. MACDONALD said he was unable to give the figures asked for in the first part of the question. Many doctors who, in answer to the questionary issued before the war, expressed their willingness to serve in the Forces could not see their way to do so when approached at a later date, but he was assured by the secretary to the Central Medical War Committee that of the doctors who had in recent months applied to be recommended for commissions in the Royal Army Medical Corps very few had not yet had their names submitted to the War Office, and that accordingly the situation referred to in the last part of the question should not in general arise. If Dr. Morgan had any cases in mind and would let him have particulars he would make inquiries. Reference to the Local Medical War Committee was usually necessary to verify that the volunteer could be recruited without serious prejudice to the medical services of the area.

On January 21 Sir ERNEST GRAHAM-LITTLE asked the Prime Minister whether his attention had been drawn to the formation, by the British Medical Association, of a medical planning commission to consider problems of reconstruction and reorganization in the field of medicine in the post-war era; and whether, in view of the complexity of these problems and the importance to the public as well as to the medical profession of such reorganization, he would consider the desirability of appointing a Royal Commission to conduct this inquiry with the ultimate purpose of appointing an independent Government commission to regulate this reorganization, in place of an individual and unofficial medical association, whose recommendations could not command the general assent which would be accorded to a Government inquiry.

Mr. CHURCHILL: I am aware of this inquiry by the British Medical Association, and of similar inquiries by other bodies interested in the medical and hospital field. They will no doubt afford a useful addition to the abundant material available, in the reports of commissions and elsewhere, when the opportunity of reconstruction comes. I do not think that the appointment of a Royal Commission would in present circumstances be opportune.

Mr. MACDONALD, replying on January 21 to Dr. Morgan, said that the executive responsibility for securing the provision of adequate medical and sanitary services in public shelters regularly used for sleeping had now been devolved on the Regional Commissioners. They had the assistance of their inspectors, both medical and sanitary. If in any particular area the Commissioner were to be dissatisfied with the progress made by the local authority it would be open to him to recommend that the authority be superseded. In the City of London and the metropolitan boroughs eight doctors were in whole-time attendance at shelters, 159 more were under contract to visit shelters each night, and a further 308 were on call. The terms of service for each of these three classes were set out in Circular No. 2190, and he was not aware that there was any general dissatisfaction among the doctors whose services had been obtained.

Universities and Colleges

UNIVERSITY OF OXFORD

B.M. and B.Ch. Examinations, 1941

It should have been made clear in the notice regarding the above examinations (January 11, p. 67) that, so far as the *second* B.M. is concerned, only an examination in *pathology* will be held in March and April; there will be no examinations in any other second B.M. subjects, though there will be a complete first B.M. examination.

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I (Medicine):* Margaret D. Baber, R. S. Lawrie. *Branch II (Pathology):* S. D. Elliott, H. Spencer. *Branch IV (Midwifery and Diseases of Women):* Mary Kane, Kathleen M. Robinson, I. E. J. Thomas. *Branch V (Hygiene):* Kathleen M. Hart.

M.S.—*Branch I (Surgery):* A. D. Le Vay.

D.Sc.—P. A. I. Gorer (Guy's Hospital Medical School), R. W. Haines (St. Thomas's Hospital Medical School).

PH.D.—*In the Faculty of Medicine (Non-clinical):* H. Kwiatkowski.

ROYAL CANCER HOSPITAL (FREE)

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY.—D. Andrew, H. F. Francis, J. J. Richmond.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

In England and Wales the four commonest infectious diseases in this country—diphtheria, scarlet fever, measles, and whooping-cough—declined in incidence slightly compared with the previous week, but in London there were notable increases in respect of all four. In Scotland the notifications for diphtheria and whooping-cough rose, especially of the former. The tardy rise in the incidence of infectious diseases in London is naturally ascribed to the effects of evacuation, but in view of the abnormally low incidence of these diseases in 1939 it is possible that the 1938 level may be exceeded before those that have remained have acquired immunity through attack. Notifications of acute poliomyelitis have risen slightly, and the figures for dysentery are nearly double those of the previous week.

Dysentery.—Although twenty-one administrative counties were affected, in only seven were more than 5 cases recorded—namely: Kent 36 (all in Tonbridge R.D.); London 23 (St. Marylebone 16, and 1 each in the boroughs of Camberwell, Finsbury, Hackney, Shoreditch, Wandsworth, Westminster, and Woolwich); Lancaster 18 (Preston R.D. 12, Whiston R.D. 3, Leigh M.B. 2, Manchester 1); Warwick 13, all in Birmingham; Surrey 11 (Reigate M.B. 8, and 1 each in Epsom and Ewell M.B., Coulsdon and Purley U.D., and Banstead U.D.); Leicester 9 (Market Bosworth R.D. 8, Leicester 1); Yorks, West Riding, 7 (Sheffield 4, Wakefield 2, Huddersfield 1). It is evident that, in relation to the numbers at risk, rural communities are affected much more heavily than urban centres, as is commonly observed when infection is conveyed through the alimentary tract. Although the figures for deaths are not available, the case fatality is probably low, as the mild Sonne form is the prevalent type at present.

Influenza.—A hint of the possible appearance of influenza in epidemic form is given by the rise in the pneumonia (primary and influenzal) figures, which exceed those of 1939 and 1938. From other countries reports have arrived of outbreaks of mild influenza in epidemic form among European countries: from Ireland, especially in the city of Cork; from Stockholm, where the disease is extremely contagious although mild; from Belgrade, where more than 60,000 cases have been recorded; and from the United States of America, notably in Memphis (45,000 cases), Boston (20,000 cases among school children), and in Western Virginia, where the epidemic is regarded as the worst since 1918.

No. 51 for 1940

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 21, 1940.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1940					1939 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	133	11	32	1	3	26	—	6	—	—
Deaths		2	4				—	—		
Diphtheria	1,378	64	485	32	40	813	31	255	51	35
Deaths	39	2	11	3	1	17	1	9	3	1
Dysentery	152	23	17		—	38	12	43		—
Deaths			2	—	—			—	—	—
Encephalitis lethargica, acute	16	—	—		—	1	—	—		—
Deaths		—	—				—	—		
Enteric (typhoid and paratyphoid) fever	16	1	3	21	—	15	2	2	4	—
Deaths	1	—	—	1	—	1	1	—	—	—
Erysipelas		37	59	6	5			71	10	3
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	24	1	5	3	1	28	1	3	8	2
Measles	15,221	448	288*		51	1,772	11	14		89
Deaths	16	1	5	2	—	3	—	—	1	2
Ophthalmia neonatorum	50	1	12		1	59	4	16		1
Deaths										
Pneumonia, influenzal†	970	63	8	3	11	454	26	12	3	22
Deaths (from influenza)	30	6	4	2	1	27	4	9	1	1
Pneumonia, primary			248	11				165	5	
Deaths‡		68		10	10		5		22	8
Polio-encephalitis, acute	3	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	13	—	3		—	4	—	—		—
Deaths		—	—				—	—		
Puerperal fever	2	2	10	4	—	4	4	8	3	—
Deaths		—					—			
Puerperal pyrexia	106	3	12		1	111	9	13		1
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,496	93	225	62	40	1,072	32	157	52	83
Deaths	3	1	—	—	—	2	1	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths		—	—	—	—		—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	2,935	40	206		23	734	14	20		1
Deaths	16	—	5	2	—	1	—	—	—	—
Deaths (0-1 year)	317	23	74	24	22	341	25	63	30	8
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,944	889	690	196	134	5,280	802	681	196	153
Annual death rate (per 1,000 persons living)			14.0	13.1	11.7			13.8	13.2	13.4
Live births	4,547	267	815	236	174	4,919	611	829	232	188
Annual rate per 1,000 persons living			16.5	15.8	15.2			16.8	15.6	16.5
Stillbirths	204	14	32			260	36	45		
Rate per 1,000 total births (including stillborn)			38					51		

* Notification in certain administrative areas only.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

‡ Since January 1, 1940, figures for London (b) have been for deaths from all forms of pneumonia; the corresponding figures for 1939 relate to deaths from lobar pneumonia only.

The Services

CASUALTIES IN THE MEDICAL SERVICES

ROYAL ARMY MEDICAL CORPS

Major GORDON ALAN MACDONA LINTOTT died on active service in December, 1940, while serving in Egypt. He received his medical education at Guy's Hospital and qualified M.R.C.S., L.R.C.P. in 1931, becoming M.R.C.P. in 1934. He also took the degrees of M.B., B.S. of the University of London in 1932 and proceeded M.D. in 1936. He had held the posts of medical registrar and tutor, demonstrator in physiology and pathology, and house-physician and out-patients' officer at Guy's Hospital, and before the war was clinical tutor at the hospital. He will be remembered for his critical examination and report on the routine of water divining carried out in the physiological department of the hospital. He mastered the technique of gastroscopy under Henning in Germany and subsequently visited many clinics in the United States of America, returning with much valuable fresh knowledge. On the outbreak of war, by which time he had established a reputation as a sound clinician and an able teacher, he remained at the hospital in the Emergency Medical Service as physician in charge of the medical unit, until he felt that he was still not putting out enough effort, when he joined the R.A.M.C. as major.

Medical News

Sir Walter Langdon-Brown will give a Chadwick Public Lecture entitled "Mental Health in Wartime" on Tuesday, February 4, at 2.30 p.m., at the Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W.1.

A conference on A.R.P. is to be held on February 2, from 10.30 a.m. to 4 p.m., at Islington Central Library, 68, Holloway Road, N.7. The conference is convened by the Association of Architects, Surveyors, and Technical Assistants, and by the National A.R.P. Co-ordinating Committee. Their aim is to bring together for discussion technicians who are qualified to solve the urgent problems of A.R.P., and administrative officers who are not satisfied with the present state of affairs. Shelters, the care of those bombed out, and medical problems are among the subjects scheduled for discussion and on which a free exchange of opinion will be encouraged. Drawings and models of various types of shelter will be on view.

It is learnt that vitamin C, given in sugar tablets, is to be distributed daily, free of cost, to all children between the ages of 10 and 14 who live in thickly populated districts of Germany or territories incorporated into the German Reich. The order is effective from February 1 to May 31 in all regions except where fruit and vegetables are plentiful. Vitamin C tablets have already been distributed on an experimental basis free throughout the Reich. The resistance to infection was found to increase, and between December 15, 1940, and March 31, 1941, the treatment was extended to newly born children with good results.

The *Scotsman* reports steady progress in the campaign to immunize children against diphtheria in Edinburgh. Up to January 17, being the end of the sixth week of the scheme arranged by the Public Health Department, contact had been made with 20,387 children, and of these 15,438 had received the two inoculations necessary to complete immunization. Of the completed immunizations, 1,983 were given at child welfare centres, 2,800 at schools, and 7,933 at first-aid posts throughout the city. The number of immunizations carried out by private medical practitioners up to the same date was 2,722, and fresh batches of certificates are reaching the medical officer of health from this source every day.

Even if the evacuation of children is causing some unexpected psychological problems, it is at least satisfactory to note that the children in a much more dangerous and difficult position are being given sympathetic consideration by the authorities. Mrs. Creswick Atkinson, a member of Lord Horder's Committee, a well-known broadcaster on child welfare and a former British Red Cross worker, has been moved from her post as technical adviser to the Women's Voluntary Services in order that she may take up a full-time paid appointment as organizer of welfare work for women and children who use the large air-raid shelters of London. Mrs. Atkinson will advise local authorities on the organization of welfare work in those shelters holding 500 or more people. She will work in collaboration with Mr. Charles Key, M.P., London Regional Commissioner for Shelters. Mr. Key states that, while dispersal remains the policy of the Government, and while one of the new organization's tasks will be to persuade mothers to evacuate their children, it must be expected that the large shelters will still be much used. Of the 81,000 children still in London, 60% have not attended school since last July and are badly in need of the care and guidance which the new body of welfare workers will provide.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London*; SECRETARY, *Medisecra Westcent, London*.

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Premenstrual Mammary Swelling

Dr. ROSAMOND BISCHOFF (Luton) writes: I should like to know if any of your readers could tell me how to treat patients who suffer from swollen, painful breasts before menstruation. I have one patient who has considerable pain and slight swelling for two weeks before each period. Menses are regular and of moderate amount. She has been married six years but has no children. Examinations of breasts and pelvis are negative. Other patients have this complaint in a lesser degree and for a shorter period. My cases are all in nulliparae with normal menstrual history and negative examination. Would any form of hormone therapy be advisable?

Income Tax

Reduction in Net Earnings

"R. H." was mobilized in September, 1939, and has since employed an assistant. His aggregate income as assessed for the year to April 5, 1940, was not sufficiently in excess of his aggregate earned income for that year to justify a claim for relief. How does he stand for 1940–1?

*** Presumably the profits of the practice will have fallen still further for 1940 owing to the fact that an assistant will have been paid for the whole of that year. It may therefore be that the difference between aggregate income as assessed (taking the practice profits at the 1939 figure) and the aggregate actual earned income for the year to April 5, 1941, will satisfy the 20% condition and relief will be due. (N.B.—In calculating the actual income from the practice "R. H." can if he prefers compute it for the year to April 5, 1940, as 3/4 of the 1939 profits plus 1/4 of the 1940 profits, and it may be worth reviewing the position for that year now that the 1940 figures are available.)

LETTERS, NOTES, ETC.

Diphtheria Incidence: A Small-pox Analogy

Dr. ROBERT ANDERSON (Birmingham) writes: Dr. R. M. Courtauld (January 18, p. 106) may find the explanation he wants in Glasgow's experience of small-pox epidemics in 1900 and 1901. In 1900 there were about 2,000 cases of small-pox and over 400,000 people were revaccinated—about half the population. In 1901 there was another epidemic of about 500 cases. Not one of the 400,000 revaccinated people contracted the disease. This was an experiment in immunization on a large scale.